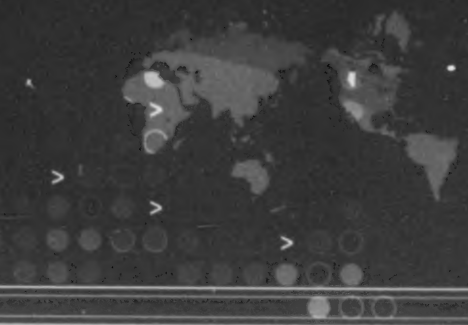
SHAPING ALBERTA'S FUTURE



Report of the
Premier's Council for
Economic Strategy

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INTRODUCING THE COUNCIL AND THE CHALLENGE

THE PREMIER'S CHALLENGE TO THE COUNCIL

- What must Albertans begin to do now to sustain prosperity through the next three decades and beyond?
- How can we ensure our children and grandchildren enjoy even greater opportunity than we have – that we hand future generations a legacy of "a better Alberta"?
- What will it take to make the Alberta of 2040 *the* place for creative and committed citizens to live, work, raise families, contribute to and enjoy society?

What will the world be like in 2040?

Some predict that tremendous advances in science and technology will be revolutionizing the globe, pulling nations out of poverty, hunger and repression. Others paint more frightening scenarios of a planet strained by population growth and climate change, with gaps growing between rich and poor, terrorism and violence on the rise, millions on the move in search of food security.

This report of the Premier's Council for Economic Strategy is intended to inspire dialogue and action to ensure that in 2040 and beyond, the citizens of Alberta will be thriving, enjoying a desirable quality of life. Our purpose is not to make bets on which predictions will prove true. It is, rather, to point Albertans to actions we believe will best enable the province to prosper under any scenario. We call on all Albertans to make intentional choices now to shape their future, the future of their grandchildren and the future of Alberta.

In these pages, we identify opportunities Alberta has within its grasp, given its history, endowment and potential. We also shine a spotlight on threats to Alberta's future prosperity and suggest strategies for managing these risks well. Our focus is on building an Alberta that is resilient and outward-looking, with all its citizens contributing to their full potential and ready to seize opportunities, a respected and strategic player in Canada and on the world stage.

What we bring to this task

We, the Premier's Council, are twelve individuals who are passionate about the future of this province and this country. We were selected from an initial pool of 500 potential candidates through a process that involved almost 100 Albertans in nominating and selecting Council members.[1] Four of us live in Alberta; four in other parts of Canada; four in the U.S. or the U.K. We all have strong ties to Alberta and Canada. We bring to the task many years of experience in business, academia, not-for-profit organizations and government. When we talk in this report about what "we" in this province can do collectively to shape our own future, we include ourselves along with all Albertans.

For the past twenty-one months, Council members have read and listened, talked and thought about the questions Premier Ed Stelmach posed to us. We came together periodically in small working groups and as a full Council – on the phone, via videoconference and in person – to share our thinking and challenge each other. We looked at strategies that have worked in other parts of Canada or the world, and we brainstormed made-in-Alberta strategies that could be pioneered here.

We asked Albertans and knowledgeable people from around the globe to share their thoughts by reacting to discussion papers, attending informal dialogues or writing to us. We asked some direct questions, but we also asked others to tell us, "What's missing from the conversation? What are we *not* asking that in your view we *should* be talking about?"

Many people have given us valuable insight and ideas that have influenced this report – to each we are grateful. We cannot possibly appropriately acknowledge the multiple sources and conversations behind every statement made in it. These are our own opinions and perspectives, informed through our experience and this process, on issues Albertans must face now to secure prosperity three decades from now and beyond.

A call to action for all Albertans

While we suggest steps government can take to shape the future, the report is written to all Albertans, not just to political leaders. We want this report to contribute to ongoing conversations and begin new ones. We call on the business community and industry associations, academic and research institutions, non-governmental organizations and social service agencies to take leadership and initiate action within their spheres of influence. We call on all citizens to get engaged. Many of the issues we explore can be addressed only through the personal choices of individual Albertans. Others require tough political decisions and voter support.

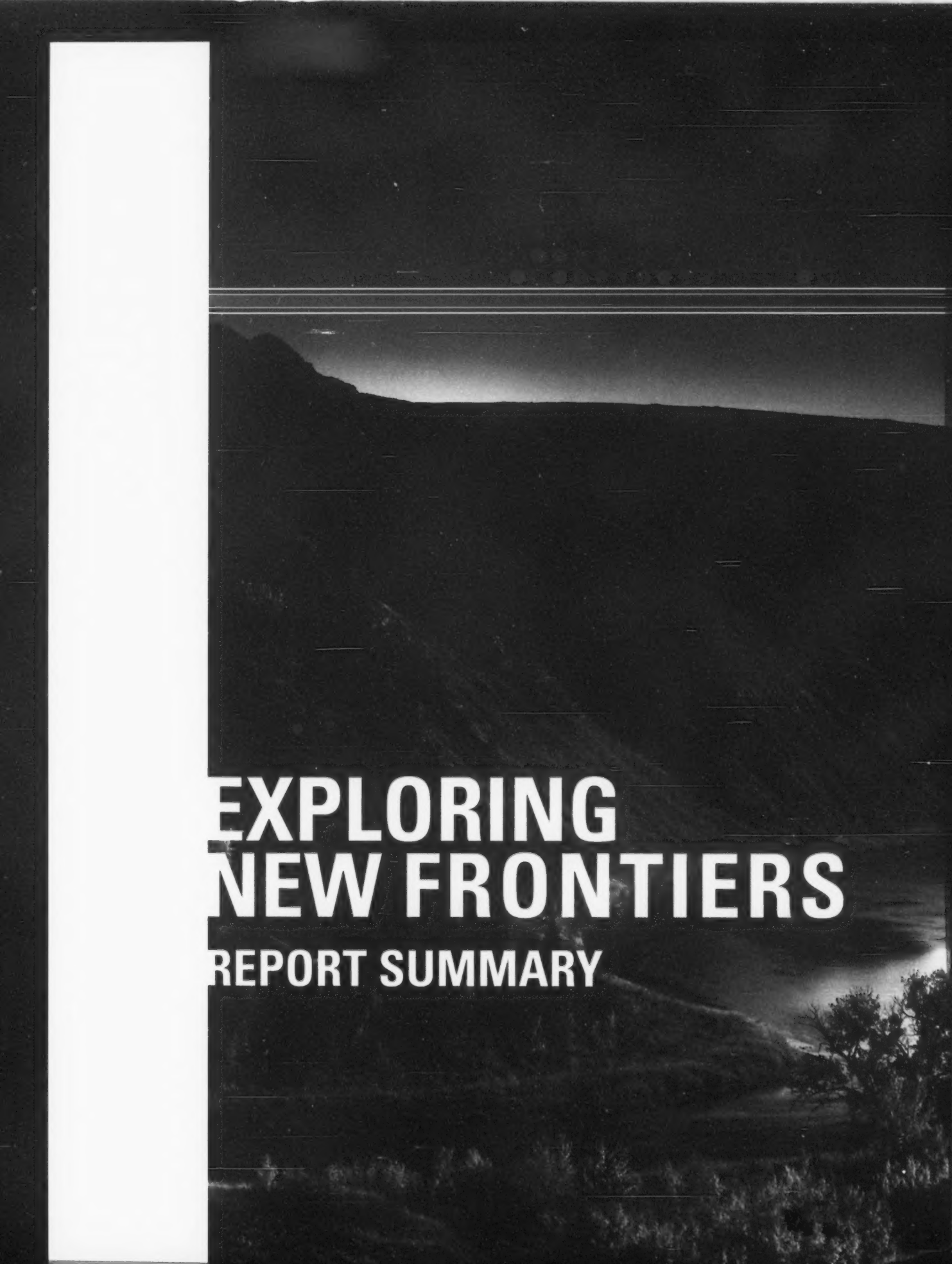
We are encouraged by the eagerness shown by so many we met, especially by young people whose future this is – eagerness to participate in planning and shaping a future that builds on the province's strengths and values, while taking it in exciting new directions. We hope Albertans in every walk of life will find in these pages at least one idea that will inspire them to take action.

David Emerson, Chair of the
Premier's Council for Economic Strategy

Elyse Allan	*John Bell*	*Robert (Bob) Brawn*
David Dodge	*Juan Enriquez*	*James K. Gray*
Clive Mather	*Anne McLellan*	*Courtney Pratt*
Lorne Taylor	*Jennifer Welsh*	

May 2011

1 See Appendix A for member bios



EXPLORING NEW FRONTIERS

REPORT SUMMARY

EXPLORING NEW FRONTIERS – REPORT SUMMARY

This conversation about the province's future continues a long Alberta tradition of successful adaptation to changed circumstances. While Aboriginal people have lived here for thousands of years, many of Alberta's citizens are relative newcomers. Some are descended from the waves of immigrants who arrived from the U.S., England, Ukraine, Germany and elsewhere in Europe through the late nineteenth and early twentieth centuries. Others have come more recently from Asia, South America, other parts of Canada, all over the world. All can tell stories about how their world changed when they settled in Alberta – most for the better.

For the earliest pioneers, much of the knowledge they brought from their homeland about how the world worked no longer held true here. Farming was different. Social norms were different. Ukrainian Catholics and Scottish Protestants whose differing views might have led to friction under other circumstances learned they had common cause and worked together. The early entrepreneurs who built the energy sector took huge risks, pouring substantial resources into creating a new industry.

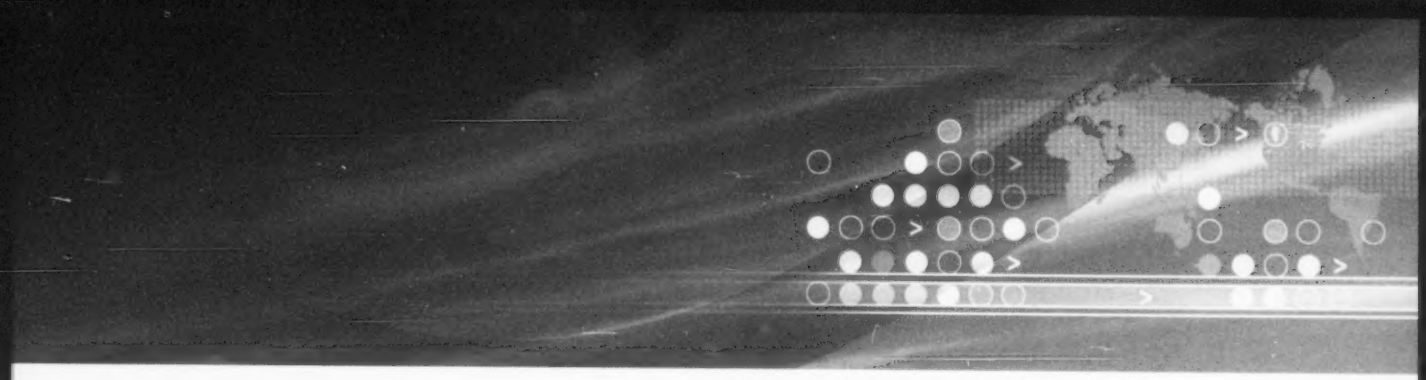
Circumstances are changing again, not because Albertans have migrated elsewhere, but because the world is changing. It works differently than it did even a decade ago. We cannot afford to shut our eyes to this transformation. Neither can we let today's prosperity make us complacent.

By world standards, Alberta is a small jurisdiction that relies on exports and interaction with others. Our future will be influenced by factors outside our control. We are inextricably interconnected into a global grid in new ways we are just beginning to understand. Albertans' best chance for sustained prosperity will be to pioneer once again – to find common cause and move forward with intent, as we have done successfully in the past.

Opportunity and challenge

Alberta's prosperity currently depends on the sale of energy to the U.S., and increasingly on oil sands as the source of that energy. The province is vulnerable as a result. We say this not because there is a danger of running out of raw materials – Alberta's energy resources are massive – but because the production costs of heavy oil from oil sands are among the highest in the world, and because our reputation for orderly and responsible development is under attack.

We must protect this revenue stream by addressing issues of cost and environmental impact. At the same time, we must plan for the eventuality that oil sands production will almost certainly be displaced at some point in the future by lower-cost and/or lower-emission alternatives. We may have heavy oil to sell, but few or no profitable markets wishing to buy.



In relying largely on one sector and one market, Alberta has yet to seize opportunities to build a more resilient economy. We have great strengths to leverage. We have a vast supply of natural resources and a history of resourceful pioneering to make the most of this gift. We have expertise in areas such as energy production and related environmental challenges, food and fibre, medical and biotechnology, information and communication technologies. We have capital to invest, educated people, a peaceful society, stable political and financial systems. We could be tapping into growing markets in Asia and South America for energy and other products. We could be deriving higher value from our human and natural resources by applying knowledge and technology in innovative ways.

Efforts over six decades to grow strong new sectors in Alberta have been hampered by cycles of "boom and bust" that have characterized the energy sector. During the busts, capital has dried up as investors retreated. During the booms, energy projects have attracted all available labour and capital to support massive construction efforts, driving up wages and materials costs. In either cycle, it has been difficult for other sectors to grow and establish a competitive position in international markets.

But developing profitable new revenue streams will be essential to sustaining prosperity over three decades and beyond. This is too important to be left to chance. We need the discipline to execute plans to broaden the economic base over the long term, starting now and staying the course consistently over many years.

Overcoming the challenges and seizing the opportunities will require major capital investment – in people; in business development; in transportation and communication infrastructure to access new markets; in sound management of essential inputs such as water, land and electricity. With a small population, and labour shortages already constraining growth, it will be especially critical to ensure that every citizen has the drive and ability to contribute to his or her full potential. We need a healthy population, equipped with the knowledge and contacts to prosper in a global economy, and committed to learning through life. We need to attract talent from around the world and make the best possible use of the skills and experience newcomers bring.

Alberta has long maintained one of the most competitive tax structures in the country. The gap between tax revenue and current expenditure on public services has been filled by the money the provincial government receives (primarily in the form of royalties) from the sale of our non-renewable energy assets.

We think it critical to realign the province's fiscal regime such that capital received from the sale of these assets is invested in shaping the future and sustaining prosperity for generations to come. This does not mean turning Alberta into a high-tax regime or instituting draconian measures that prevent this generation of Albertans from enjoying quality public services. It does mean following some fundamental principles of sound financial planning: cover day-to-day operating expenses from regular income (in the case of a government, this means individual/corporate taxes and user fees); treat money received from the sale of assets as capital to be put to work strategically to create greater income in the future.

We are advocating that government investment of this capital be directed toward actively protecting the province's energy revenue stream and nurturing new economic activity – not just invested for financial return. The long-term pay-off for all Albertans will be in profitable businesses creating wealth for their owners, interesting and well-paying jobs, more public revenues to fund the delivery of services, and a desirable quality of life – for this generation and for generations to come.

WHERE TO START

Throughout this report, we identify what we see as priority starting points – critical actions we believe must begin now to set Alberta on a course to prosperity three decades from now and beyond. We group these under five themes:

Theme 1 – Realizing the full potential of our energy resources: We must take steps to ensure that Albertans and all Canadians benefit from development of our hydrocarbon energy resources as much as we can for as long as we can – addressing issues of environmental impact and cost of production, and entering new markets

Theme 2 – Broadening the economic base: We need to reduce the vulnerability that comes with heavy reliance on energy sales to only one market, the U.S. – by applying knowledge in new ways to get greater value from all our natural and human resources; delivering new products and services into new markets

Theme 3 – Preparing to prosper in a global economy: Alberta needs all its citizens to develop the mindset and skills to thrive in today's world and drive economic growth – to be resilient, lifelong learners, healthy and productive, eager to achieve and perform, globally connected and informed

Theme 4 – Providing a strong platform to sustain economic growth: We need wise management of our water and land, a reliable source of competitively priced electricity, transportation and communication systems to get products to market and support global interaction

Theme 5 – Investing in shaping the future: We need a more strategic and disciplined approach to managing our resource wealth and investing to shape the future – because it will take sustained commitment over the long term to secure prosperity for future generations of Albertans

We propose five big ideas – "flagship" initiatives – that we think have the potential to radically transform the Alberta economy, putting it on a trajectory that will secure future prosperity. These are:

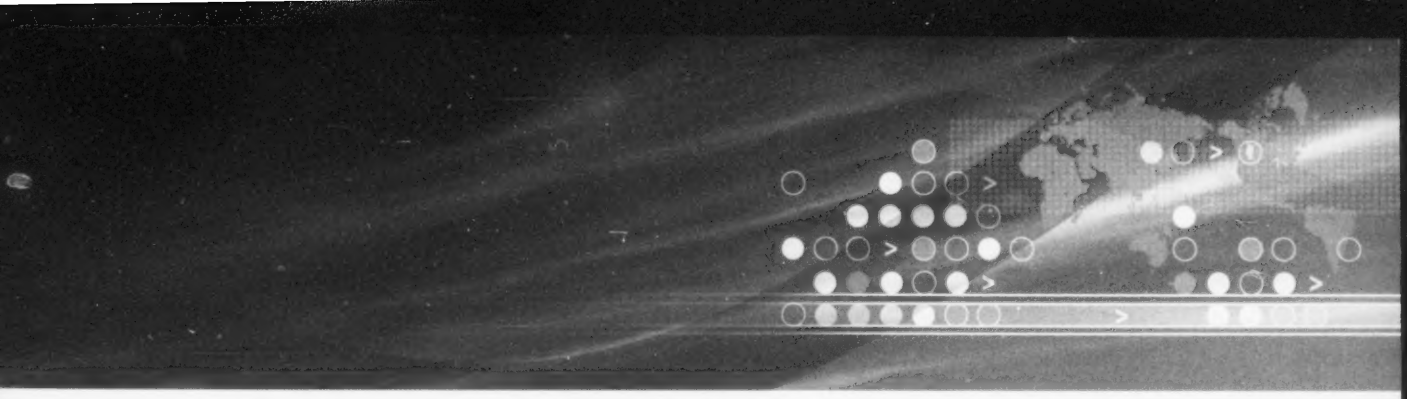
> Create a **Global Centre for Energy** – a crucible for accelerating innovation to transform environmental and operational performance

> Establish an **Alberta Institute for Advanced Technology (AIAT)** with a sole focus on commercially oriented research to create new products, processes, services and companies

> Accelerate action on ensuring **Aboriginal young people** achieve parity of educational outcomes with non-Aboriginals – so they are able to benefit from opportunities the province offers, and contribute to the province as productive workers, engaged citizens and leaders

> Give a new **Alberta Water Authority** the mandate to innovate in water stewardship, and realize the full benefit of our precious water assets

> Institute a **Shaping the Future Fund** to ensure that money produced by converting non-renewable energy assets today is invested with intentionality to secure prosperity for future Albertans (in such initiatives as these flagships)



Staying fixed on the destination

We recognize that much will change over thirty years. Few would have predicted events unfolding as we write this report: citizens organizing through social media to overthrow governments in the Middle East; the extent of the financial uncertainty plaguing countries in Europe; a devastating earthquake in Japan – the latest of an extraordinary number of natural disasters over the past several years. The challenge for Albertans will be to alter course as necessary to remain on track to our destination, while resisting being blown off-course by every wind we encounter – to persevere with long-term efforts that we know are critical to our success. We must be guided by the navigational beacons we choose.

We have provided in this summary overview a glimpse of the destination we seek. We explore its features further in the pages to come. The Alberta we envision in 2040 is prospering, and is well-placed to prosper long into the future. Its citizens are enjoying – and actively engaged in creating – an enviable quality of life in vibrant communities.

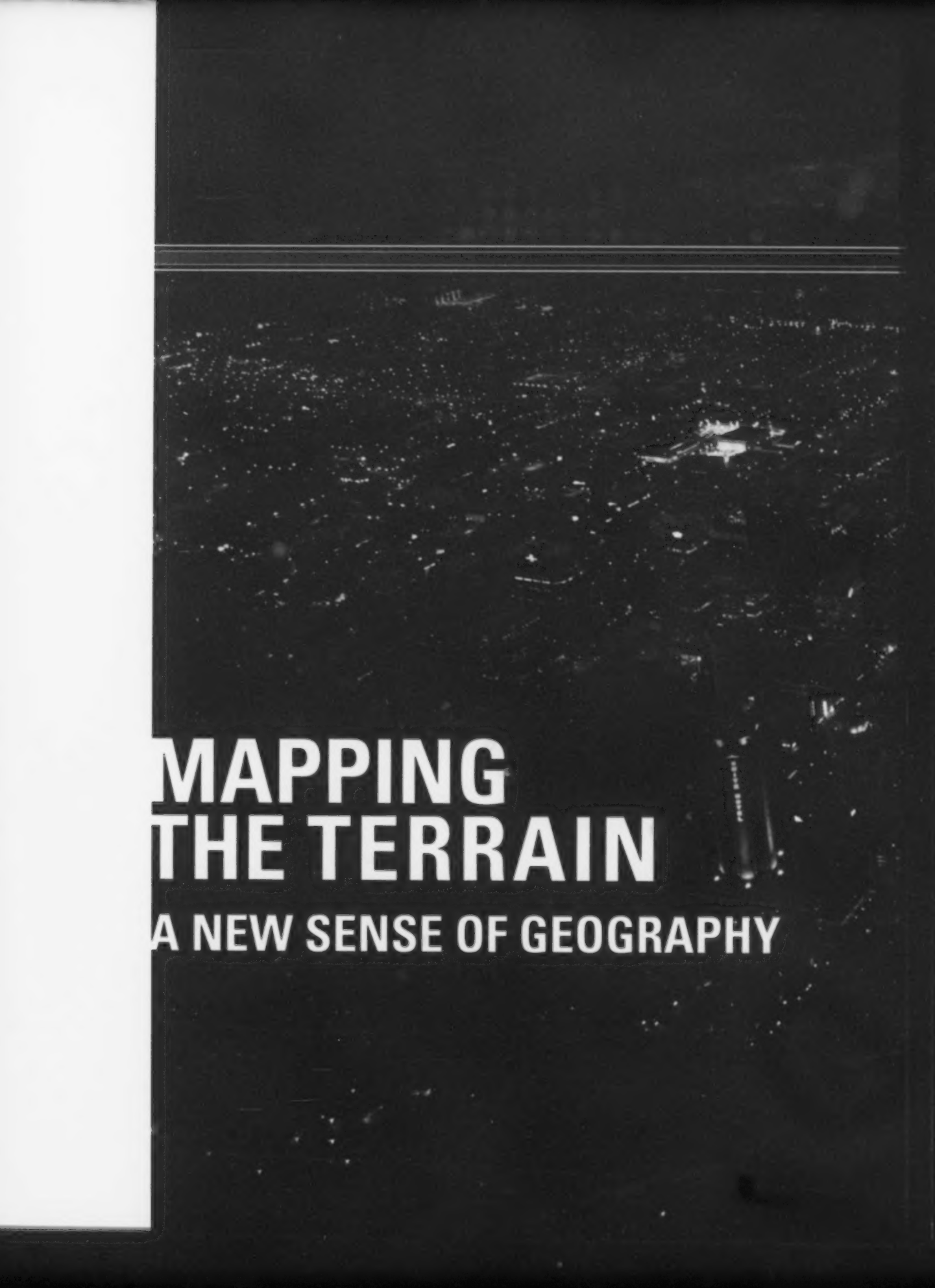
Economic activity is grounded in the principle of responsible stewardship – of reaping the benefits of the natural resources with which Alberta has been blessed in a way that provides continuing value for generations to come.

Citizens of Alberta 2040 are building on their strengths to create exciting new jobs in industries that were barely imagined in 2010. They are investing wealth from the sale of non-renewable energy assets in creating new opportunities for their grandchildren and their children's grandchildren to generate more wealth and enjoy prosperity.

Reaching our destination will not be easy. We know of no magic formula for broadening the economic base of a natural resource economy, no single jurisdiction to hold up as a shining example of what to do. Alberta can, however, learn much from what jurisdictions like ours (but with fewer resources) have managed to achieve.

We can also learn from our own past. Decades ago, Albertans made a visionary decision to develop the oil sands, knowing full well it would be years before the sector was profitable. We owe our current prosperity to a combination of patient public money, pioneering research and industry ingenuity. If we put the same kind of determination behind today's challenges, Alberta can demonstrate to the world what it takes to diversify a natural-resource-based economy.

Securing the prosperity of future generations will require leadership, courage and focus. It will require leaders to choose a strategic path and commit to following it over the long term. It will also require the engagement and energy of all Alberta citizens. We begin by exploring the seismic shifts underway that are changing the globe and opening new frontiers.



MAPPING THE TERRAIN

A NEW SENSE OF GEOGRAPHY

MAPPING THE TERRAIN – A NEW SENSE OF GEOGRAPHY

Alberta is a small jurisdiction with a very high profile in the global economy. One of thirteen provinces and territories, we are home to just 10% of Canadians. Our 3.7 million people represent a mere 0.05% of the global population.

But our vast land mass – roughly equal to that of France – is rich in natural resources. With global demand for energy growing, our massive hydrocarbon reserves are attracting the world's attention. And, as concern increases over the planet's ability to feed a world population expected to reach around 8.5 billion by 2040, more eyes may turn to the potential of our extensive fertile land to grow food for export.

Being in the spotlight can be uncomfortable at times. Albertans are proud stewards of the beautiful landscapes that draw visitors from around the world, and proud of progress made in this province on environmental protection. Even as we acknowledge that the environmental performance of our energy sector must improve dramatically, we are disturbed by the damage done to our reputation as "dirty oil from Alberta tar sands" grabs headlines in respected publications, well-known companies announce boycotts and environmental groups launch anti-Alberta campaigns.

At the same time, the fact that we have resources the world needs gives Albertans a tremendous opportunity to choose our desired future and invest in creating it. A critical aspect of the choice will be finding new ways to engage with our country, our neighbours and the world.

Alberta cannot go it alone

We depend on export for our wealth, and therefore must maintain strong relationships outside our borders. Given the small size of our population and the abundance of our natural resources, any recipe for sustained prosperity must begin with expanding global markets for resource products and keeping them profitable. A key element of ensuring their marketability must be earning a reputation with customers for responsible environmental stewardship. Since realizing the full potential of our energy resources will require billions of dollars, we need to attract investment from external sources.

It is also clear that creating a broader economic base mitigates the risk to sustained prosperity. In developing a more extensive array of products and services sold into more markets, we build in resilience to shifting patterns of global demand in a volatile world, and to the rise and fall of prices for commodities like oil and agricultural products. When the energy sector is booming, it is easy to forget how important building a diversified economic base is for sustaining growth and enhancing long-term prosperity.

We may be tempted to hope that energy busts are a thing of the past and start counting on boom times lasting forever, or at least returning more frequently. We may try to ignore the reality that the world is changing, and assume business-as-usual will secure prosperity for our children and grandchildren.

That would be a mistake. We must recognize that our ability to attract investment, broaden our economic base and export profitably is inextricably bound up in issues that are being debated and acted upon in national and global arenas – issues such as climate change and environmental protection, global poverty, energy security, border security, food security and safety. Decisions made, priorities and prices set elsewhere have a huge impact on our economy. It is in our best interests to look for every opportunity to engage in and shape such debates, not sit back and hope all turns out well.

Seismic shifts underway

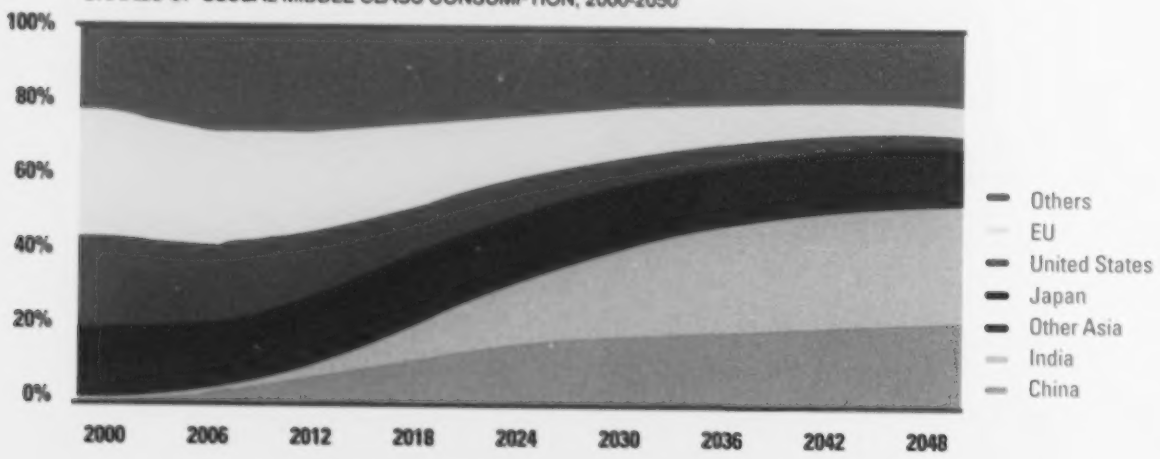
There are seismic shifts happening in the world that we can use to our advantage if we are smart about doing so – but that could equally pose risks to our prosperity. The world's economic and intellectual centre of gravity is shifting. In 2000, the countries we knew as "developing" or "emerging" were home to 56% of the global middle class. By 2030, that figure is expected to reach 93%.

Much of that increase will be in Asia. In China, the middle class will almost double. China alone has accounted for 30% of global growth over the past decade. It is estimated that India's middle class will increase tenfold over the next two decades, and that India's economy will continue to sustain high growth rates.[2]

These countries are pouring money into building infrastructure to support growth: roads and rail, airports, telecommunications, water and sanitation, power generation and transmission. They have become both aggressive competitors and attractive

INDIA AND CHINA MAKE WAVES IN THE GLOBAL MIDDLE CLASS

SHARES OF GLOBAL MIDDLE CLASS CONSUMPTION, 2000-2050



Source: "New global middle class," 2008.

2 Kharas, 2010; "New global middle class," 2008.

potential markets/partners. They are putting a strong focus on graduating or recruiting the engineers, mathematicians and research scientists they need to transform their economies from producers of low-cost goods to serious players in an increasingly high-tech world. They are investing in the electronic and digital technology that enables virtually unlimited access to the global reservoir of knowledge, science and technology.

More middle class consumers in the world means growing demand for products Alberta can supply: energy, building materials, higher protein and specialized food – especially meat. Global energy demand has increased over the past five years despite the recession. Most experts predict conservation and efficiency will slow but not stop this growth for some time. The price of oil is widely expected to remain high, keeping high-cost oil sands production profitable.

At the same time, high prices combined with increasing public concern about the environmental impact of oil production will accelerate development of substitute transportation fuels (most oil is used for transportation), such as natural gas, hydrogen or innovative biofuels. A major disruptive technology – or a convergence of smaller innovations – could produce an affordable, environmentally friendly energy source in sufficient quantities to drive fundamental shifts in global consumption patterns.

This would be a great thing for the world and good for Alberta's economy if we are ready to exploit such a development. It could be economically devastating if, when it happens, we are still heavily dependent on exports of oil and find markets for our production rapidly disappearing.

A tidal wave of advances in knowledge is now changing how the world does business. Information and communication technology allows e-businesses to tap into global markets with minimal entry cost.

Developments in robotics/artificial intelligence and genomics are fundamentally changing medicine, agriculture, forestry and energy. Scientists have succeeded in making a bacterium with an artificial genome, creating a living organism with no ancestor. Synthetic biology is opening up new potential for

AN INTERCONNECTED GLOBAL GRID

The 2010 Nokia Growth Economy Venture Challenge – which carries a prize of $1 million in venture capital – was won by Virtual City, a company started by two young entrepreneurs in Nairobi who are using mobile phones to automate supply chains in Africa and collect electronic payments from customers.

They support the type of increasingly global value network that, for example, allows a small-scale grower near Kenya's Lake Naivasha to supply flowers within 24 hours to a distribution centre in the Netherlands, that delivers a bouquet to Switzerland, which was ordered by someone in Edmonton over the internet or through a call centre in Ireland.

> Our thinking has evolved to reflect the reality that successful companies need to be distributed; rarely based in a single location. We now look for key links to regions we are focused on rather than exclusive residency.
>
> Submission to Council from Shawn Abbott, Partner, iNovia Capital

designer drugs, crops that require less water, foods engineered for health and cleaner fuels. It's already possible to grow mice teeth in a glass dish and organs in a 3D bioreactor, and to farm algae to make biofuels. New companies exploiting opportunities in the life sciences are creating high-tech, well-paying jobs. Large, established companies are pursuing new and highly profitable lines of business.

The world is looking more and more like a highly interconnected global grid. Financial markets are increasingly integrated, such that a crisis in one market is quickly felt around the world. The virtual community of Facebook, population 600 million and growing every day, has more "inhabitants" than all but a few countries on earth. By 2040, the internet will be the vehicle for the vast majority of the world's commercial activity.

Global supply chains are becoming the norm. If you track the provenance of a product on the market today, you are likely to find that multiple places contributed to its ultimate value. Where it was invented and designed – quite possibly in cyberspace through a global network of researchers collaborating over the internet – is not likely the same place its parts were made. Buyers searched the world for the components, seeking the highest quality for the lowest cost wherever they could find it. Components were assembled in a country where labour costs are low. Marketing and distribution decisions were made on the other side of the world.

Events like the grounding of air travel after a volcanic eruption in Iceland or the aftermath of an earthquake in Japan can disrupt supply chains and cause serious grief to companies headquartered far from a disaster zone.

A strong starting place

For Albertans, these shifts open up opportunities all around the world for new markets, pools of talent to address labour shortages, partnerships in solving problems, sources of investment in Alberta and places for Alberta to invest. Our high-cost labour and distance from markets become less significant barriers to economic growth as new business models emerge. Knowledge knows no borders.

We are starting this journey from a strong position. By world standards, Alberta "has it all." Other jurisdictions are facing serious deficits, security issues, looming energy and water shortages, enormous job losses. Canada has weathered the economic storm of the past several years better than most, at least in part due to the strong regulatory environment that kept the banks intact and solvent. Alberta had the foresight to put money aside from the windfall profits of boom times, and with it has been able to cushion the economic impact of the recession.

The province has a vast supply of natural resources, including the largest deposit of heavy oil in the world, and we have money to invest. We have smart, educated people and a history of resourceful pioneering. We have a peaceful society governed by the rule of law and a culture that welcomes newcomers. We have stable political and financial systems, and a regulatory environment that makes it relatively easy to do business here. We are well-placed to attract the businesses, capital investment, researchers and entrepreneurs that will enable us to make the most of our natural resources and broaden our economic base.

The province is large enough to have a solid infrastructure platform on which to build, but small enough to make large-scale change manageable. Alberta can turn on its head the old adage that abundant natural resources can be an economic curse rather than a blessing. We can demonstrate how to put our resources to work to create a stable, knowledge-based economy and a vibrant, exciting place of opportunity.

The risks: complacency and insularity

With so much going for us, what could prevent Albertans from enjoying prosperity for decades to come? The biggest potential threats Council members see are complacency and a hesitation to engage confidently beyond provincial borders.

Alberta has resources the world needs, but we cannot assume the world will beat a path to our door. Boom times can breed complacency. We can forget we are facing stiff global competition, and that our productivity lags that of competitor countries (an Alberta-government-initiated Competitiveness Council is now working with industry to improve the province's performance on this front). While our resources are abundant, we supply only about 2% of the world's oil. We are currently highly reliant on one product, which is under attack for its environmental impact, and one market, which is dealing with the legacy impacts of recession and a crisis of public finance. That is risky.

> Taking the Alberta message to the emerging world markets and setting clear targets for export market diversification and international investment attraction should be a priority.
>
> Submission to Council from Calgary Economic Development

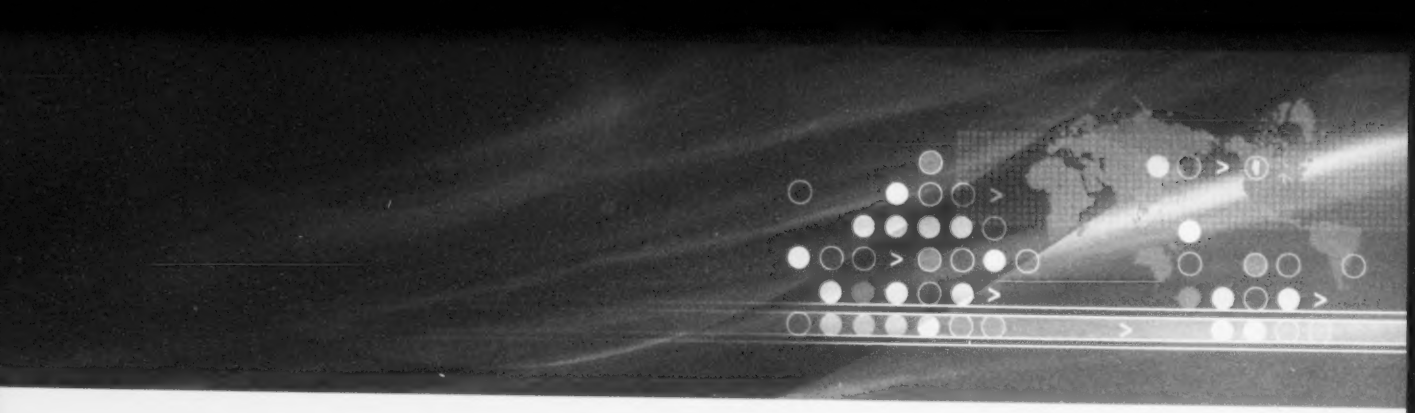
The fast-growing economies of the world are not complacent. Their people are highly motivated. Their youth are hungry for the kind of lifestyle Albertans enjoy, and are determined to get it. Their governments are implementing aggressive plans to build skilled and productive populations. China has increased fivefold in ten years both the number of undergraduates among its population and the number of graduates with doctoral degrees. India estimates it will need to build 800 to 1,000 new universities within the next ten years to accommodate demand.[3]

There is a real risk that thirty years from now Albertans will find ourselves watching the global economic game from the sidelines – because our resource wealth made us too comfortable, and we lost the drive to achieve and perform at a critical moment.

This is a risk no report or recommendation can remove. Whether or not we as a province overcome it depends on the choices individual Albertans make every day as to how to live their lives, where they invest their intelligence and energy and capital.

Collectively, we also have choices. We can choose to wait until circumstances change and then react as best we can – by which point it may be too late. Or we can be proactive, making strategic investments to shape the Alberta we want to see in the future. The Council believes that choosing a path forward and acting with intent to shape the future is by far the better strategy.

3 Davidson, 2010.



> Throughout my lifetime it seems Alberta has been an economy of circumstance. Do we now need to become an economy of intent?
>
> Question posed by Stephen Jull, Principal at Kinase Strategy (and a young Albertan currently working in the U.K.) at the Council's London outreach session

We must take steps now to ensure we realize the full benefit of our energy resources and broaden our economic base in the new global context. As we look outward, we must expand our thinking beyond simply "selling stuff" to those who want it. Now is the time to think more broadly about investing strategically in businesses in other parts of the world, attracting investment to Alberta, becoming part of the international networks that are creating exciting new knowledge and technology, and finding specialized niches we might fill in global supply networks. We must invest in helping Albertans engage with the world and prosper in a global economy, carefully considering how we use our current public wealth to build a legacy for future generations.

Pulling together to build the North American platform

Ensuring Alberta's communities are vibrant and strong is an important starting point for securing our economic future and desired quality of life. Businesses are attracted to places that have the necessary infrastructure and services, reliable local transportation and easy access to markets, good local pools of talent. People want to live in safe and welcoming communities offering affordable housing, excellent health care and schools, a broad range of social services, sports and recreation, culture and entertainment. An easy commute to work, clean streets, healthy air and green spaces all earn a city competitive advantage in attracting workers.

To secure our economic prosperity three decades from now and beyond, however, we must move from the local view to think more broadly about Alberta's place in Canada and the world. We need a new sense of geography and more robust global engagement. We must understand that rivalries among cities, tensions among provinces or between federal and provincial governments are a serious distraction from competing and prospering in the global economy. It's time to put these aside and pull together to build a strong Alberta in a strong Canada in a strong North America.

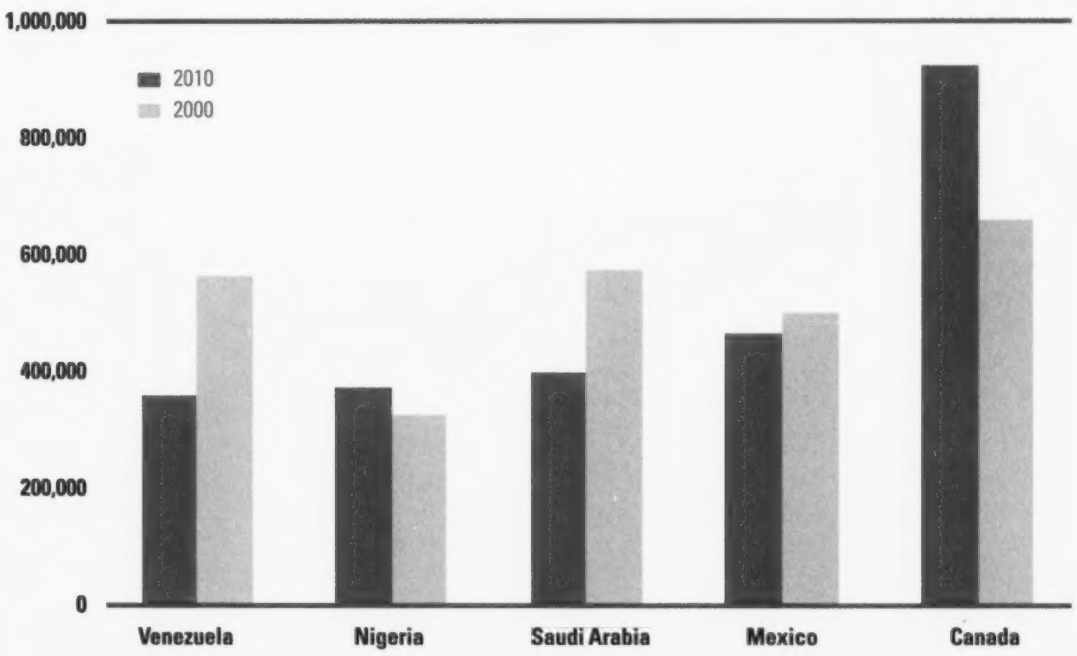
We believe Alberta must invest time and effort in keeping the Canadian federation strong. We clearly share interests with the other western provinces in relation to natural resources, pipelines, rail and road corridors, and interconnected electric power transmission grids. We have joined British Columbia and Saskatchewan in a Western Economic Partnership, and now have a Trade, Investment, Labour and Marketing Agreement (TILMA) with British Columbia.

On most of the key issues facing the province, there is at least some form of shared federal/provincial responsibility: on environmental regulation/carbon management, border security and trade within North America (starting with interprovincial trade in Canada), opening new markets, immigration, transportation, Aboriginal affairs, health care. Constructive dialogue and relationships with Ottawa and the federation are very important to Alberta's economic future. We must take the initiative in areas that are critical to our destiny, working to secure alignment of federal policies and approaches with Alberta's economic strategy, rather than reacting to events.

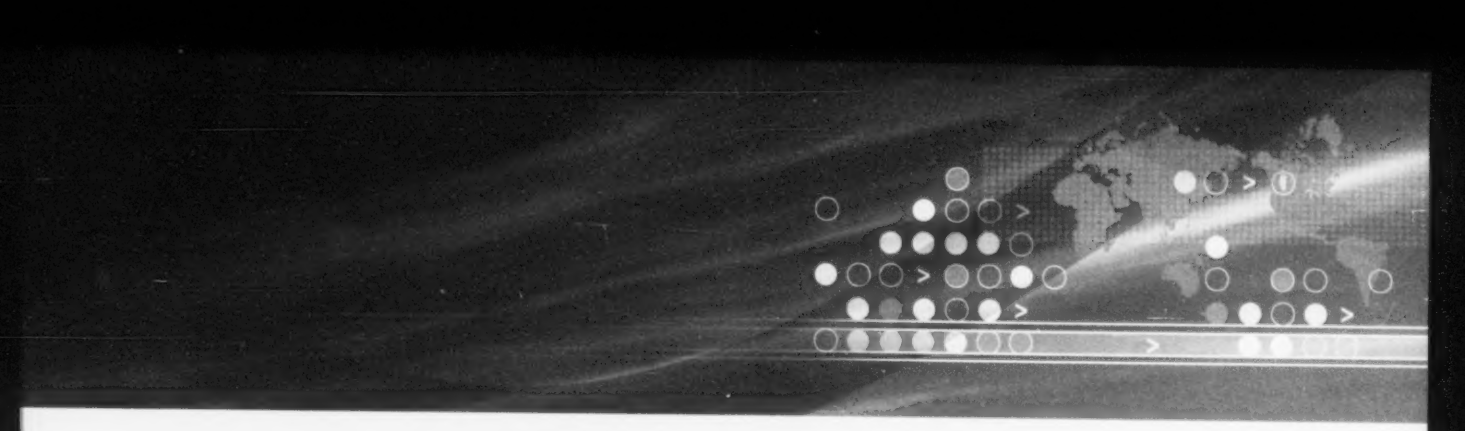
We must also expand our horizons and think about building a competitive North American platform. At 457 million, the entire population of North America is a third that of China and just under 40% of the population of India. It is 53 million less than that of the European Union. We stand a much better chance of playing profitably in a global marketplace if we collaborate closer to home.

The countries of the North American continent share common challenges. Ecosystems don't respect national borders. We need a continent-wide approach to managing carbon and protecting the environment. We must continue to pursue a continental perimeter and joint security strategy that keeps people and goods flowing across North America, while enhancing safety and security.

U.S. OIL IMPORTS 2000 AND 2010
(THOUSANDS OF BARRELS)



Data source: EIA, 2010.



A revitalization of the North American Free Trade Agreement (NAFTA) is in Alberta's interests. The value of Alberta's exports rose about seven-fold in the twenty years following the introduction of NAFTA.[4] Alberta's economy is highly dependent on the U.S., the destination for some 75-85% of our exports.[5] The U.S. counts on Canada as one of its major energy suppliers. Supply chains and transportation corridors are linked.

But the urge to protect domestic employment in the U.S. has led to increasing use of trade barriers (often under the guise of product safety, security or environmental protection) to shield local industry from competition. Our view is that NAFTA is eroding, just at the moment when its partners need it to be strong.

The partner we once believed invincible is struggling; the market we once thought unlimited has clear boundaries. When the most recent recession hit, exports to the U.S. plummeted from $97 billion in 2008 to $59 billion in 2009.[6] The U.S. economy currently is heavily dependent on injections of public stimulus money, the impact of which will be felt for a long time as the public debt grows. The U.S. debt-to-GDP ratio has reached the highest level in history. GDP growth remains low and unemployment high.

It is clear Alberta would be wise to reduce our almost total reliance on sales of oil and gas to the U.S. market. But it would be a mistake to let our close ties weaken. The entrepreneurial drive and innovation success that has defined the U.S. economy is alive and well. Small, high-tech companies are creating new jobs in fields that didn't exist a decade ago, even as large corporations are shedding them. A significant number of Albertans are now living and working in the U.S. Collectively, they represent a resource on which to draw in strengthening relationships.

Council members also believe Canada as a whole has tended to underestimate the importance of Mexico in this partnership. The media paints a picture of drug wars and attacks on tourists. The drug wars are an ongoing challenge for the country, but it is also true that Mexico has made progress since NAFTA in strengthening its democratic institutions and stabilizing its economy. It is an emerging market of 112 million people with a per capita income more than twice that of China and four times that of India. Goldman Sachs predicts the Mexican economy will surpass Canada's and become the seventh largest in the world by 2040.[7]

Mexico's influence with the U.S. is also increasing. This is in part because the U.S. recognizes common cause in helping Mexico tackle the social and economic challenges facing this still fragile democracy. The growing Hispanic population in the U.S. is also a factor. There are almost as many Mexican-Americans in the U.S. – around 30 million – as there are Canadians in Canada.

Canadians should be seeking opportunities to invest in this growing economy and to sell into Mexican markets. We could be cooperating in areas of mutual interest – such as environmental protection, forestry, oil and gas technology – and sharing our expertise in areas where Mexico needs assistance, such as strengthening its judicial system and its commitment to the rule of law. Although Canadian companies are increasing their investment presence in Mexico, it is the destination for only 1.4% of Alberta's exports.[8]

Alberta has taken initial steps to think in terms of a North American platform and make it real. The province is active in the Pacific Northwest Economic Region, a vehicle for collaboration to grow local economies that includes Alaska, Idaho, Oregon, Montana, Washington, and the western Canadian provinces and territories. This is a good start. We must build on it.

4 Mirus & Tanerguclu, 2008, p. iii.
5 GoA, 2010a, p. 16.
6 GoA, 2010a, p. 16.
7 Wilson & Dragusanu, 2008, p.10.
8 GoA, 2010a, p. 16.

Opportunities further afield

Looking further south in the western hemisphere, we also see potential opportunities in the growing economies of Central and South America. GDP growth in Latin American countries has outstripped the OECD average in fourteen of the past twenty years.[9] Average growth across Latin America is double that of Canada. There are countries in resource-based South America that share our interest in energy and mining, agriculture and biosciences, as well as the related challenges.

By 2040, for example, Brazil is projected to become the world's fourth largest economy.[10] It is home to one of the world's largest oil companies, Petrobras. While Brazil has been considered a competitor to Canada's agricultural products, it is a potential partner in the search for cleaner energy. What Brazil needs most is assistance with education and training, something Alberta's education system and our larger companies could provide.

We have noted the shift in the economic centre of gravity to Asia, and the major influence of China and India in the global economy. Both countries are investing strategically around the world – particularly in Africa – to secure long-term supplies of energy, food and other primary resources to meet the needs of 1.3 billion people in China, 1.2 billion in India and expanding middle classes. Other Asian countries such as Vietnam, Sri Lanka and Indonesia are also on a rapid growth track.

As Alberta seeks to broaden its economic base and reduce reliance on a single market, we must vigorously pursue opportunities in Asia – the potential for new markets, new two-way investments, new sources of workers and ideas, new research or wealth-creating partnerships.

We have established relationships on which to build. The China Alberta Petroleum Centre was created in Beijing more than twenty years ago to promote research and development collaboration in areas of mutual interest, people and technology exchange, increased China-Alberta trade, and two-way investment. Chinese energy companies are investing billions of dollars in the oil sands and establishing offices in Alberta.

> Alberta must make every effort to engage in trade policy directions led by the federal government, and push for openness and access to foreign markets. It means devoting serious financial resources to create deep expertise in increasingly complex international trade agreements which enhance market access and increase competition at home.
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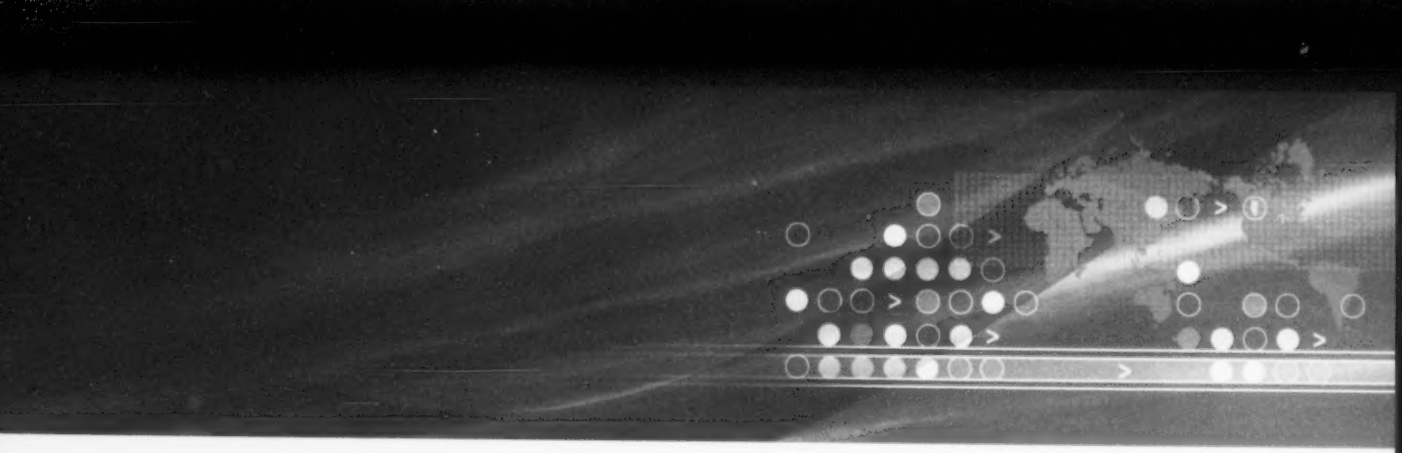
> Submission to Council from the Western Centre for Economic Research, and the Centre for Applied Business Research in Energy and the Environment, University of Alberta

9 Franklin, 2010, p. 121.
10 Wilson & Dragusanu, 2008, p.10.



Alberta's trade with China has tripled over the past seven years, reaching $3.1 billion in 2008 before dropping to $2.8 billion in 2009.[11] China sells about $1.54 billion in goods to Alberta.[12] Around eighty Alberta companies now operate regularly in China. Our universities have active research partnerships and connections with alumni working in China. Bill 1 introduced by the Alberta Legislature in February 2011 will establish an Asia Advisory Council to look at how best to tap into the tremendous opportunities available in the region.

That said, Canada has failed to complete a single free trade agreement anywhere in Asia, and our business leaders have been slow to make Asia a priority. Canada is not among the nine countries currently negotiating a Trans Pacific Partnership agreement (the U.S. is). It is important to our economic future that Canada is not shut out of this. We need to take action at home to remove barriers to Canada's participation, such as agricultural policies that restrict access to Canadian markets. We must strengthen ties with Asia.

A new way of engaging

The prospect of competing in a global arena against much larger players can seem daunting. It is also difficult to fully predict in which regions of the world the greatest opportunities will lie for Alberta over the long term. Trends we're watching now may change suddenly and dramatically for any number of reasons.

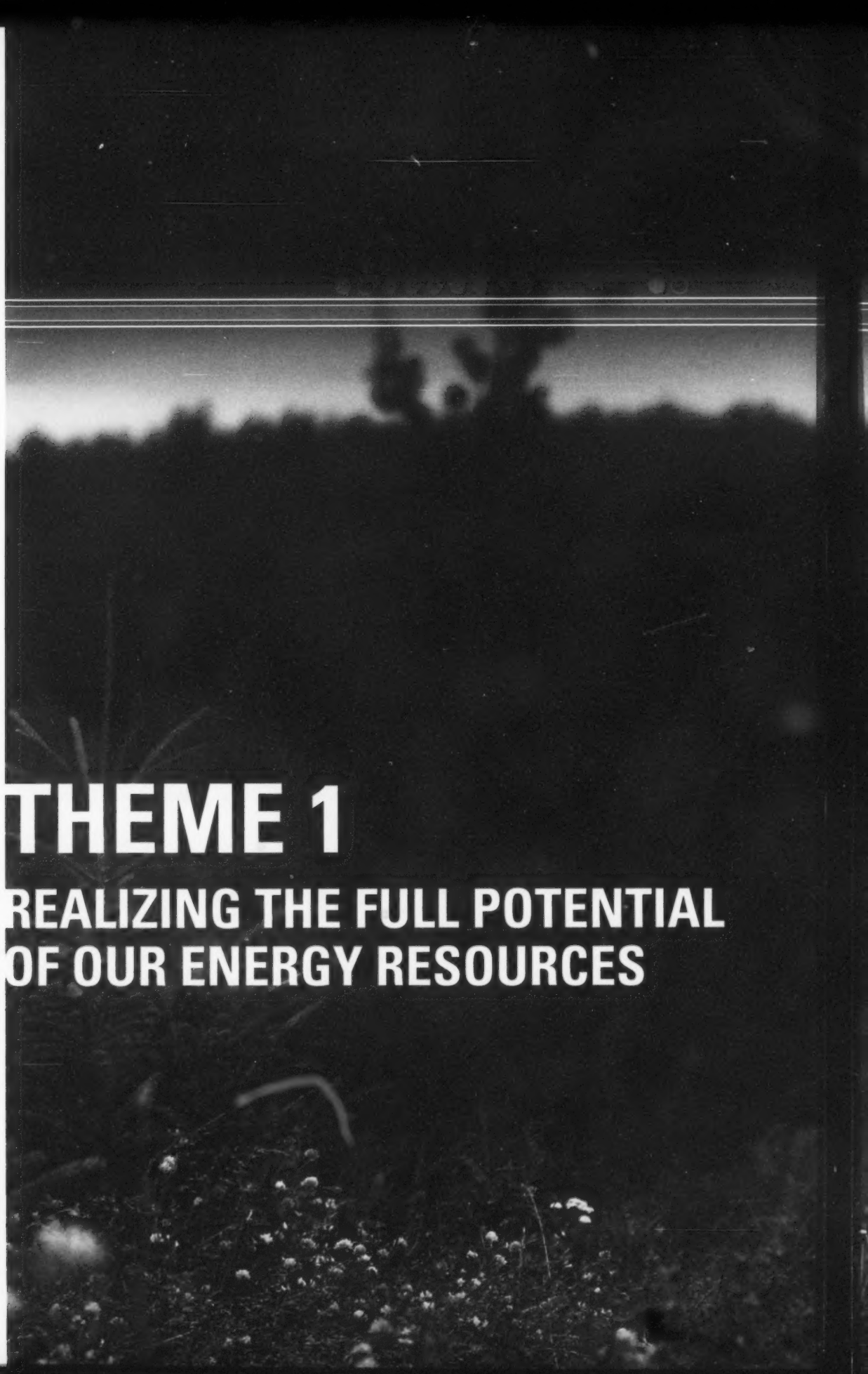
The challenge looks different, however, when we remember the world is increasingly operating through a grid of interconnected global networks and supply chains. It is less a matter of going head-to-head against a stronger competitor than of finding the "sweet spots" where Alberta can participate in wealth-creating partnerships. Much of this can happen through people networks.

Government efforts to secure trade and investment agreements and raise the province's profile may be targeted to strategic countries. But in parallel, individuals and companies can be cultivating their own relationships around the world. They can use their personal and professional networks to aggressively seek new markets within this hemisphere and beyond. The internet enables them to participate in virtual research collaborations, create e-businesses or find niches in global supply chains. Increasing the flow of Albertans to destinations outside Canada – and people from elsewhere into Alberta – would improve greatly the province's ability to build and leverage such networks.

The fundamental pre-condition for Alberta to thrive in a changing global economy is people driven to seek and seize opportunities wherever they appear – people who instinctively look outward and engage with the world. Our view is that too few Albertans do this now. Albertans' first instinct is to look south for markets, investment and partners – and then only as far as the U.S. We focus on the export of energy and neglect other sectors. We fail to benefit fully from the potential of the natural and human resources we have in this province.

Let's explore the five critical areas that must be addressed to change this picture.

11 GoA, 2010a, p. 48.
12 GoA, 2011b.



THEME 1

REALIZING THE FULL POTENTIAL OF OUR ENERGY RESOURCES

REALIZING THE FULL POTENTIAL OF OUR ENERGY RESOURCES

We must take steps to ensure that Albertans and all Canadians benefit from development of our hydrocarbon energy resources as much as we can for as long as we can – addressing issues of environmental impact and cost of production, and entering new markets

Today, the sale of energy to the U.S. dominates the Alberta economy, accounting for about two-thirds of total exports. We are becoming more and more dependent on oil sands as the source of those energy exports. There are good reasons to believe that Alberta and Canada will continue to prosper from the sale of energy resources for many decades to come: supplies are vast, demand is growing, the price of oil is rising and investment is once again flowing into oil sands projects.

But we are also vulnerable: we depend on one market, and our production costs are among the highest in the world. The reputation of our major product is under attack due to concerns about its environmental impact.

To succeed in realizing the full potential of our energy resources, we must:

- Develop and implement a rolling, long-term integrated energy action plan, with oil sands at its centre
- Use policy, regulation and pricing proactively to stimulate innovation and drive change
- Implement rigorous, science-based, objective monitoring and evaluation of environmental performance – and use this to inform communication efforts
- Require clear undertakings for all companies wishing to participate in Alberta's energy sector
- Build the infrastructure to access broader markets

Keeping the oil sands profitable will require large-scale collaboration among industry, government and researchers. We propose as a flagship initiative the creation of a Global Centre for Energy – a crucible for accelerating innovation to transform environmental and operational performance.

Seizing opportunity/ managing vulnerability

Energy products are by far the most important contributors to Alberta's wealth. The province is home to vast supplies of hydrocarbon energy in the form of coal, oil and gas. With natural gas prices currently depressed, oil prices rising and conventional oil production possibly peaking (although new technology to recover more from existing fields is showing promise), heavy oil from the oil sands is an increasingly important part of the mix today. Oil sands also hold the key to a prosperous future, if we succeed in overcoming inherent challenges and managing vulnerabilities.

The International Energy Agency (IEA) estimates Alberta's oil sands resources at 2 trillion barrels – the equivalent of global recoverable conventional oil. The industry can recover about 173 billion barrels of heavy oil from the oil sands with today's technology at today's prices with a healthy margin of profit. The higher the price of oil rises, the greater the likelihood that more product will be recoverable, as the economic equation improves and investments are made in better technology.

While the recession of 2008-09 lowered energy demand and the price of oil for a time, the general demand and price trend is upward, largely driven by the rapid growth of emerging market economies. Chinese demand is predicted to almost double by 2035 to over 15 million barrels per day.[13]

ALBERTA'S VAST HYDROCARBON ENERGY RESOURCES

- Alberta oil sands represent 95% of Canada's oil reserves
- Oil sands production more than doubled between 2000 and 2009 to 1.3 million barrels per day
- Expectations are that production could rise to 4.2 million barrels per day by 2030
- Alberta accounts for 75% of Canada's natural gas production
- Canada is the third-largest producer of natural gas (after the U.S. and Russia), accounting for 5.1% of world production
- Estimates of coal still to be mined in Alberta: 37 billion tonnes
- Estimates of natural gas (coal-bed methane) that could be produced from Alberta's coal: Up to 500 trillion cubic feet (Tcf)
- Estimates of shale gas in Alberta: range widely, from 86 Tcf to 1,000 Tcf

Sources: Alberta Energy, 2011; IHS CERA, 2010; EIA, 2009

13 "Oil sands," 2010.

Under high-price scenarios, oil sands development projects will continue to attract investors, even though they deliver one of the highest cost crude oils available. It's easy to see why the costs are so high. Oil sands extraction is a complex business, requiring extremely expensive machinery operating under harsh conditions in areas far from markets. Factors such as the high wages required to attract skilled workers and long, bitter winters combine to lower productivity compared to other producers. It costs around $50 (varying by mine, the grade of oil and the price of electricity, among other factors) to produce a barrel of crude oil equivalent to what Saudi Arabia and Norway can produce for a fraction of this.

But history is littered with predictions that proved wildly off the mark. It is wise to be prepared for surprises. When the price of oil dropped from almost $150 to $40 per barrel during the recent recession, new investment in the oil sands dried up almost overnight and most new projects were slowed or stopped. Extended or repeated recessions on this scale could damage the industry significantly. Economic slowdown in Asia, especially China, could slow the growth of the global economy and substantially reduce demand for oil.

The higher the price of oil, the greater the stimulus to develop alternative energies or alternative technologies to reduce consumption – especially for transportation. China is investing heavily in electric vehicles, with a view to cutting energy consumption in half and replacing 20% of the gasoline and diesel fleet with new-energy cars by 2020.[14] Mass production of an inexpensive, reliable electric car with competitive performance characteristics could change the world's driving habits and reduce oil demand.

NATURAL GAS REVENUE ($ MILLIONS)

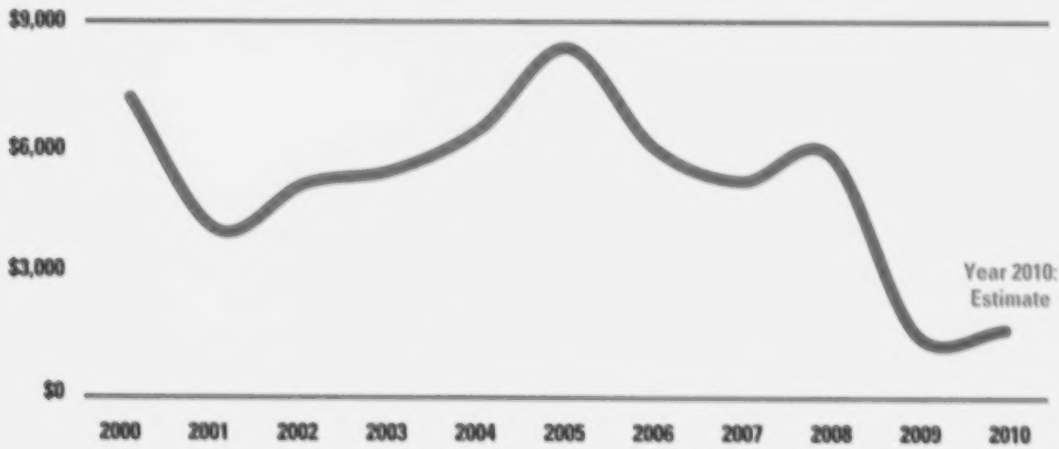
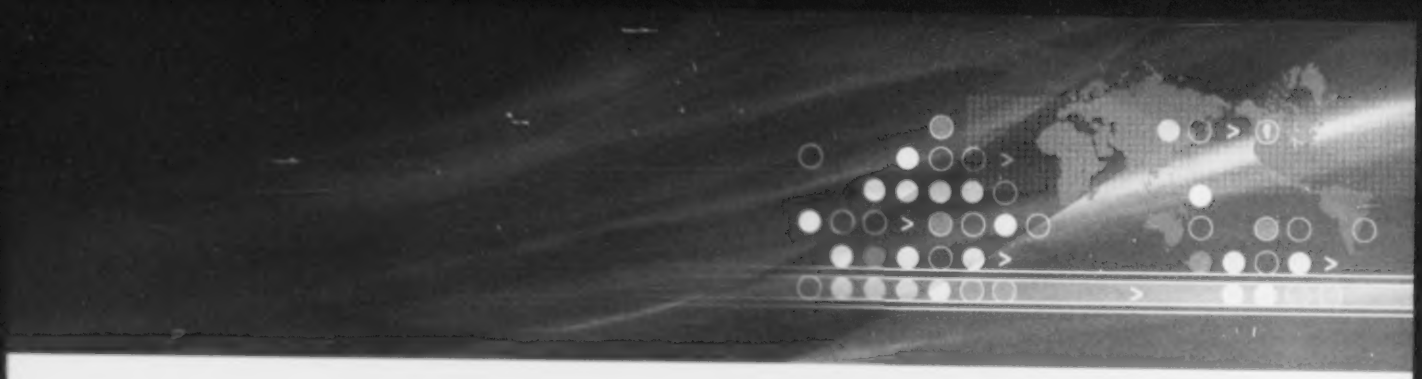


Chart provided by Alberta Department of Energy and Energy Resources Conservation Board, January 2011

14 "Downstream," 2010.



> Stewardship of natural resources is connected to our energy use, land use and our general development policies. We must realize that the "market" value of our natural resources is not an accurate measurement of value. Water, forests, food-producing land all have value to our future and our citizens that far outstrip the current market value.
>
> Submission to Council from Jessie Radies, small business owner and founder of a not-for-profit

Even if demand continues to rise, innovations on the supply side could have dramatic impact. We have seen this happen recently with natural gas. The combination of horizontal drilling and hydraulic fracturing ("fracing") has opened up huge supplies of shale gas. The coincidence of increased supply with reduced demand due to recession created a glut that drove the North American price from $7.57 per Gigajoule (GJ) in 2008 to $3.65 in 2009 and $2.59 in 2010. In one year, the provincial budget went from a gas royalty windfall to reliance on the stabilization fund to meet expenses.

The same technology is now being applied to conventional oil fields with encouraging results. If it proves successful in recovering a significant amount of the 50-70% of oil still left in played-out fields, that could be good and bad news for the Alberta energy industry. Good for conventional oil producers who now see longer lives for existing fields. Potentially bad for oil sands, if large supplies of lower-cost or lower-emission oil produced by competitors come on the market. As one of the higher-cost producers in the world, the Alberta oil sands industry is vulnerable to any reduction in global oil prices.

The industry is also vulnerable from a reputational perspective, its environmental credentials under attack by a variety of interest groups calling for an end to "dirty oil." Influential voices in the market on which we depend entirely, the U.S., are objecting to the import of Alberta oil and delaying construction of pipelines.

The wider Canadian public is not rushing to defend oil sands production either, despite the key role it plays in the country's overall economy. The Canadian Energy Research Institute (CERI) estimates that over the next twenty-five years, the Alberta petroleum industry will purchase $164 billion worth of supplies and services from other Canadian provinces and create 103,000 jobs outside Alberta. It will contribute $188 billion in taxes to the federal coffers.[15]

Public perception is shaped by photos of ducks perishing in tailings ponds and landscapes scarred by mining. The disastrous BP explosion and oil spill in the Gulf of Mexico in 2010 has served to damage the reputation of the oil industry generally. We expect that as the strain on the planet from a growing, industrializing population becomes more evident on all fronts – with increasing concerns about water scarcity and the impact of climate change – environmental consciousness will rise around the globe, and the search for better options will accelerate.

While some of the more vociferous attacks are overblown, there are real challenges to be faced in the oil sands related to carbon management, other greenhouse gas emissions, water use, land reclamation, and management of waste such as sulphur and petroleum coke. Alberta must demonstrate to markets, investors and the public that we recognize these and are taking substantial action to address them. Our commitment to environmental responsibility must be backed by measurable improvements in performance, communicated by credible voices. Achieving such improvements will require innovation and investment.

15 CERI, 2009

It will also require an integrated view that recognizes the interplay among different energy sources, and makes wise decisions that allow Alberta to realize the full value of all its hydrocarbon energy. The focus is now on the oil sands because the price of oil is high and the price of natural gas low in North America. But natural gas is much cleaner than any form of oil. As the world moves to a natural gas economy, Alberta is well placed to profit from exports. Natural gas is currently commanding a substantially higher price in Europe and Asia than in North America. Expectations are that the North American price will rise over time given various governments' stated intent to move away from coal for power generation in an effort to meet CO_2 emission reduction targets.

In the short term, the highest value use of natural gas in Alberta may be to serve as the major source of electrical power in energy-intensive oil sands production, lowering carbon emissions associated with heavy oil from oil sands and improving the environmental credentials of the industry. Oil sands production is the second-largest source of greenhouse gas emissions in Alberta, accounting for 31% of emissions (the utilities sector is the largest, at 44%). Greenhouse gas emissions per barrel of oil from the oil sands have gone down by an average of 38% since 1990. Some facilities have achieved as much as a 45% reduction. But with production volume rising, absolute emissions continue to rise inexorably.[16]

Exporting natural gas to Asia looks attractive, but requires substantial infrastructure that is not yet sufficiently developed – pipelines to the west coast, facilities for conversion into liquid natural gas, ports and shipping. While short-term economics and environmental goals might suggest converting from coal to natural gas for electricity generation in Alberta, over the long term this has the double effect of "stranding" Alberta's huge coal supplies and reducing the amount of gas that could be put to higher-value use. Investments in clean coal technology will have substantial payoffs if we succeed in realizing value from our 37 billion tonnes of coal. China, with its large coal reserves, is investing heavily in clean coal and is a natural partner in research and development, as is the U.S.

65 YEARS AGO...

[A]t Fort McMurray...are resources of bitumen, in which, some American geologists state, enough oil exists to supply the world for more than a century....Extraction so far has been difficult, but the sands will prove invaluable in the future development of Alberta....It would, therefore, be essential that any such development shall be orderly and economically sound, and that it should be free from any of the destructive features accompanying wild speculation and commercial imperialism under monopoly or combine control. Therefore, a definite and clear-cut policy should be laid down in regard to development, and it should be rigidly observed in the face of every kind of pressure from outside influences.

Alberta Post-War Reconstruction Committee[17]

16 Data provided by Environment Canada and Alberta Environment.
17 Alberta Post-War Reconstruction Committee, 1945, p.83.

WHERE TO START

If a coherent, national strategy designed by the federal, provincial and territorial governments – with buy-in from industry, other stakeholders and the broader public – existed, we wouldn't be caught up in the day-to-day, month-to-month, year-to-year debates about what should be approved and what shouldn't....A national energy strategy can also move us beyond the current polarized discussions on climate change that pit one region of the country against another.... Canada, and particularly Alberta, has a tremendous opportunity for leadership and innovation on the world energy stage.

The Honourable Ronald Liepert, Minister of Energy[18]

Develop and implement a rolling, long-term integrated energy action plan, with oil sands at its centre

Alberta has a provincial energy strategy that identifies objectives related to clean energy production, wise energy use and sustained economic prosperity. What is urgently required now is an integrated action plan that lays out what must be done when and by whom to realize those objectives. Focus it on the oil sands, because they will be key to Alberta's economic health for the foreseeable future. Acknowledge that there are risks and vulnerabilities associated with the industry, and that we must be purposeful in managing them.

Start from the oil sands, but also take an integrated look at the interplay among all our energy sources to ensure we optimize value from each. Build it in the context of efforts underway in Canada to develop a national energy framework. Consider the current and potential impact of what is happening elsewhere around the globe.

Update it regularly, and use the process to build the province's capacity to anticipate events that would shift or radically alter either the strategy or the action plan. By working together and developing multiple scenarios, industry and government will improve their ability to plan, prepare and respond appropriately when things change.

18 Liepert, 2011

Stimulating innovation and driving change

A key element of the plan is ensuring Alberta has the right comprehensive policy framework in place to accelerate its implementation. The framework must address three policy spheres in an integrated way: social policy (related, for example, to infrastructure, health and safety, labour), economic policy (fiscal incentives, royalties, tariffs) and environmental policy (water usage, land remediation, carbon and other greenhouse gas emissions, tailings ponds).

Clarity on expectations and standards is important to industry and investors. The Regulatory Enhancement Task Force commissioned by the government of Alberta delivered recommendations in January 2011 aimed at making the regulatory system more effective, efficient, adaptable, predictable, fair and transparent.

We are of the view that policy should define the "what" and "when" rather than the "how." Regulation that prescribes how industry must achieve environmental or other standards can stifle innovation. Regulation that sets out expectations as to outcomes/performance levels leads to collaborative innovation, more consistent performance by industry, solutions to intractable problems, and knowledge or technology with export potential. As technology is developed to address issues, regulation should be adjusted to require companies to meet new standards.

Pricing is also a key tool. Alberta has begun to experiment with its potential to drive change by putting a price on carbon. Industries that exceed established carbon emission levels must change operating models to reduce emissions, pay a fee per tonne emitted over the limit, or buy offsets from others who are under the limit. While this is a step in the right direction, the cost is not currently sufficient to incent large-scale change and needs to be increased over time. The government must take care, however, to ensure that the total levy on industry does not defeat the original purpose by rendering oil sands production uneconomic. Pricing mechanisms could also be applied to incent improvements in water management and biodiversity conservation.

WHERE TO START

In the 1990s, natural gas development was damaging the province's air quality, upsetting many in Alberta and hurting the industry's reputation. Through forceful regulation and its own innovative approach to getting parties to work together, the government turned the situation around. If oil sands development is to occur in an environmentally responsible manner…then the same kind of uncompromising regulation is required, based on scientifically determined environmental limits. Determining these limits would be the real policy innovation.

Ed Whittingham, Executive Director of the Pembina Institute[19]

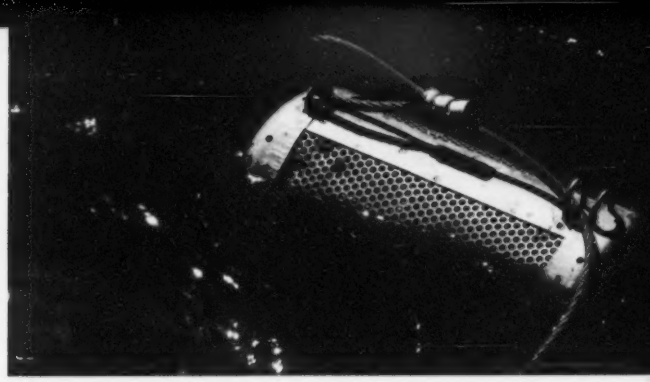
Use policy, regulation and pricing proactively to stimulate innovation and drive change

Aspirational regulation that seeks bold outcomes, with clear timelines that allow for the development of new technology and processes to meet them, drives innovation that makes it possible to meet stretch goals. Example: "All legacy tailings ponds will be gone in ten years."

Combine this approach with regulation that sets shorter-term performance standards where economically feasible technology already exists, to ensure all players are meeting the performance standards expected today. Accelerate efforts to recognize staged achievement of outcomes. The fact that the state of reclamation of land disturbed by oil sands mining is currently defined by "complete" or "not complete," for example, makes it difficult to monitor and incent progress.

Increase the price on carbon over time according to a progressive formula that is communicated in advance, so that industry can plan investments in innovation to reduce emissions. Monitor the impact on both costs to industry and potential savings (greater energy efficiency means lower costs as well as lower emissions). Use other forms of fiscal relief if necessary to keep investment flowing into essential research and development (R&D).

19 Whittingham, 2011.



WHERE TO START

Monitoring and communicating performance

Clear policy that both establishes standards and incents innovation is a necessary condition, but not sufficient. For policy to have "teeth," there must be rigorous measurement and reporting procedures in place to hold players accountable and provide accurate data to inform decision-making. Performance must be verified by objective, credible third parties. In the current context of media scrutiny and celebrity visits to northern Alberta to "see for ourselves what's really going on and tell the world," it's clear that public trust in what government and industry are saying on this front has been eroded.

The Alberta Biodiversity Monitoring Institute (ABMI) is an example of an effective approach to environmental monitoring that could be applied more widely. It is a not-for-profit, member-based organization, reporting to an independent, expert board. It contracts with appropriate third parties (such as the University of Alberta, the Royal Alberta Museum, the Alberta Conservation Authority, Alberta Innovates) to collect data on species, habitats and the human footprint across the province, using rigorous and consistent collection and reporting practices. Its core funding from government is supplemented by membership fees and professional services fees for customized studies.

ABMI analyses and interprets the data to make it meaningful to the public and useful for decision-makers, but does not make value judgments or recommendations. Its work is peer-reviewed by international scientific bodies to ensure rigour, and made available on-line for the general public.

Such science-based data is a vital underpinning of efforts to restore public confidence in industry's commitment to addressing environmental issues. Statements of good intentions are not enough to maintain a social license to operate. The government of Alberta must be a visible champion of progress on this front. But it cannot be the only voice telling the story. We must have credible third parties armed with evidence of real improvements in industry performance.

Implement rigorous, science-based, objective monitoring and evaluation of environmental performance – and use this to inform communication efforts

Expand current monitoring efforts to create a rigorous, comprehensive performance measurement system for natural resource development. Include verification by objective, credible third parties.

Establish a consistent method of collecting and publicly reporting data, so that results can be analyzed and communicated in a meaningful way. Publish rankings of company performance on key environmental indicators to recognize strong performers and incent poor performers to improve.

WHERE TO START

Making the most of outside investment

"Foreign ownership" has long been a sensitive topic in Canada. The reality of the oil sands is that development projects require substantial up-front investment – in the billions of dollars – that may take decades to deliver a return. To keep the industry growing, we need to maintain continuing investment and bring an influx of capital from outside the province and country. We also need the international linkages that direct investment facilitates. We need it to foster new markets for innovative, technologically rich products, and to open up opportunities for technology and research partnerships.

Today, investment is coming from a growing array of players, including Britain, France, Norway, the Netherlands and South Korea. Chinese energy companies have been increasingly significant investors in the oil sands, buying minority stakes in already-active developers. It is clear that for many, the long-term potential of the oil sands outweighs on balance concerns about cost inflation and environmental penalties.

> When we allow foreign corporations to take our resources, we must demand environmental responsibility, enforce compliance and sell dearly.
>
> Submission to Council from Dave Burkhart

We welcome and need this investment. But like other countries that welcome foreign investment, we should also be smart about ensuring we get the most from it. We should collaborate with the federal government in providing clarity on what we expect from any company – domestic or foreign – doing business in Alberta's energy sector. We must hold companies accountable for their commitments.

Require clear undertakings for all companies wishing to participate in Alberta's energy sector

Companies engaged in energy and minerals production around the world are used to giving undertakings – around, for example, locally based management, investment in R&D, procurement, environmental stewardship, employment and development of local human resources.

Ensure such areas are covered in Alberta by clear conditions and expectations associated with permitting, tenure agreements or changes in ownership.

WHERE TO START

Accessing new markets

Currently, virtually all of Alberta's energy exports go to the U.S. For a decade Canada has been the U.S.'s largest supplier, accounting for just over a fifth of its imported oil, with two-thirds of this supply coming from Alberta. By 2030, the oil sands alone could supply more than one-third of America's imported oil.[20] A massive infrastructure connects Alberta's oil sands to American refineries. This is to our benefit.

But reliance on a single market also exposes our most important industry to unacceptable risk. Many factors can lead to a discounting of the price of Canadian oil and gas relative to world market prices. Several American states, led by California, have passed laws designed to stop Alberta oil reaching their citizens. Should opposition to Alberta's oil continue to grow for any variety of reasons, we could find ourselves losing market share to competitors like Venezuela or Brazil. Essential pipeline construction could be blocked, impeding our ability to reach markets. As the U.S. struggles with a crisis in public finance and what looks to be a slow recovery from recession, we are potentially vulnerable to eroding demand or displacement by other sources.

We are also missing the huge opportunity created by growing demand in Asia. While improving the environmental performance of our oil sands industry is key to accessing any markets, investing in maintaining the important trade relationship with the U.S. should not be Alberta's only strategy. Equally important is cultivating new markets for current production, and exploiting the potential of new products and services.

Build the infrastructure to access broader markets

Expanding markets for Alberta energy products is critical and requires investments in new infrastructure. Start by making use of available rail capacity to access deep-water ports on the Pacific Ocean.

Make it a priority to overcome impediments to building pipelines to the west coast, with a view to shipping energy products to Asian markets and reducing reliance on the U.S. Partner with other jurisdictions and Aboriginal groups to tackle these impediments.

20 IHS CERA, 2010, p. 10.

FLAGSHIP

A GLOBAL CENTRE FOR ENERGY

THE RISK: That markets for Alberta's high-carbon energy will decline or disappear due to unacceptable environmental impact or unprofitable economics

THE OPPORTUNITY: To become a leading innovator in making energy from high-carbon resources (such as bitumen and coal) more acceptable, and a global centre of high-carbon energy expertise

THE IDEA: Create a Global Centre for Energy – a crucible for accelerating innovation to transform environmental and operational performance. Design it to be a catalyst and funder of collaborative research, a meeting place of diverse interests, and a showcase of achievement. Make Alberta internationally respected for pioneering research, with authoritative evidence and industrial-strength solutions

HOW DO WE SEE IT WORKING?

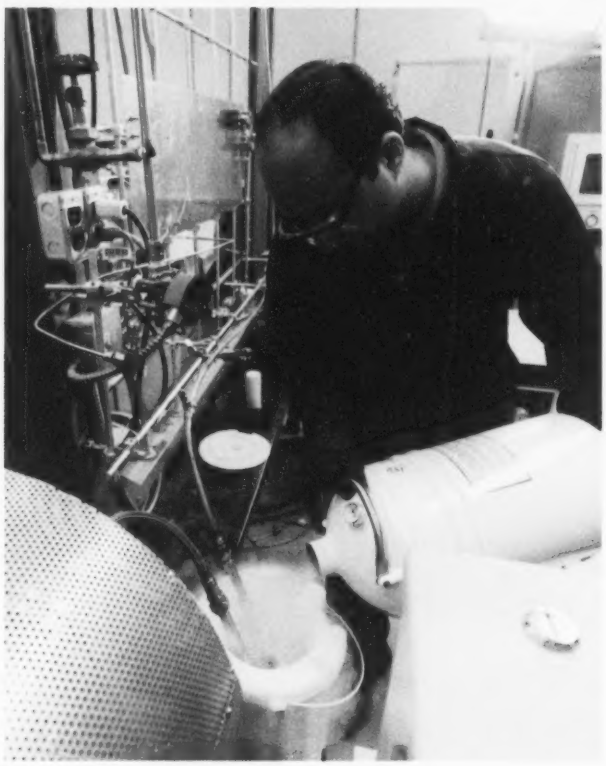
In the mid-1970s, industry, government and researchers created the Alberta Oil Sands Technology Research Authority (AOSTRA) to tackle a huge challenge: to turn the oil sands into a feasible business. AOSTRA ran research projects and funded research conducted by others. It partnered with industry, built and operated field-scale test facilities. Its most successful innovation was steam-assisted gravity drainage (SAGD) extraction, which gave access to oil sands lying below mineable depths.

Now the industry is facing another major challenge: keep the oil sands profitable by solving environmental problems while containing costs. Once again, this will require collaboration among industry, researchers and government. To ensure Alberta realizes the full potential of its energy resources over the decades to come, it is time to launch another large-scale collaborative effort like AOSTRA and make it a strategic priority for the province.

We envision the creation of a Global Centre for Energy with a mandate to foster expertise in high-carbon development and make Alberta the global "go-to" place for ideas, products and services. Its scope will include innovation in extraction, production and end use of hydrocarbons. It will also look at mitigation of energy impacts on water, air, land, people and wildlife. It will identify critical issues, drive the development of technology solutions, and recommend policy solutions to government.

The Centre will focus on new technologies that meet the triple test of economic, social and environmental sustainability. It is all about finding solutions to urgent problems, maintaining the social license to operate in the oil sands, searching for technology opportunities that improve the economic and environmental performance of our massive bitumen and coal reserves.

The Centre will champion the effort to use policy and pricing proactively to stimulate innovation and bring about change. It has a close relationship with appropriate regulatory bodies, enabling strategic use of regulation to ensure industry adoption of environmental solutions as they are created.



It will not build a large institution staffed with researchers. Instead, it will have a small staff who scout the world for ideas and technology. Centre staff will manage contracts for research, development and operational testing of solutions by appropriate external resources. The Centre has access to research labs, and a mandate to build the infrastructure necessary to test and demonstrate solutions at industrial scale.

The Centre will develop a network of expert resources from industry, academia, NGOs and professional services across Canada and the world, and serve as a neutral "safe space" for dialogue and collaboration. It supports and expands the type of collaborative industry effort we are now seeing through the Oil Sands Leadership Initiative (OSLI) and the tailings consortium.

Industry is a key partner in this effort. All companies whose business involves production of energy from high-carbon sources contribute to the Centre's core funding through a levy tied to their level of economic activity in the province (not through the royalty regime). The Centre enables them to maximize the return on their own R&D investments. It provides opportunities to participate in collaborative projects, and benefit from the subject matter and research management expertise housed in the Centre, as well as its global networks.

The Centre is a prime candidate for core funding from the proposed Shaping the Future Fund (see Theme 5), with a five-year commitment that gets renewed every year, so that in year two the plan for year six is agreed. Its creation must not, however, be contingent on the establishment of such a fund. Funding must be secured (from a levy, the province or both) to get this up and running quickly.

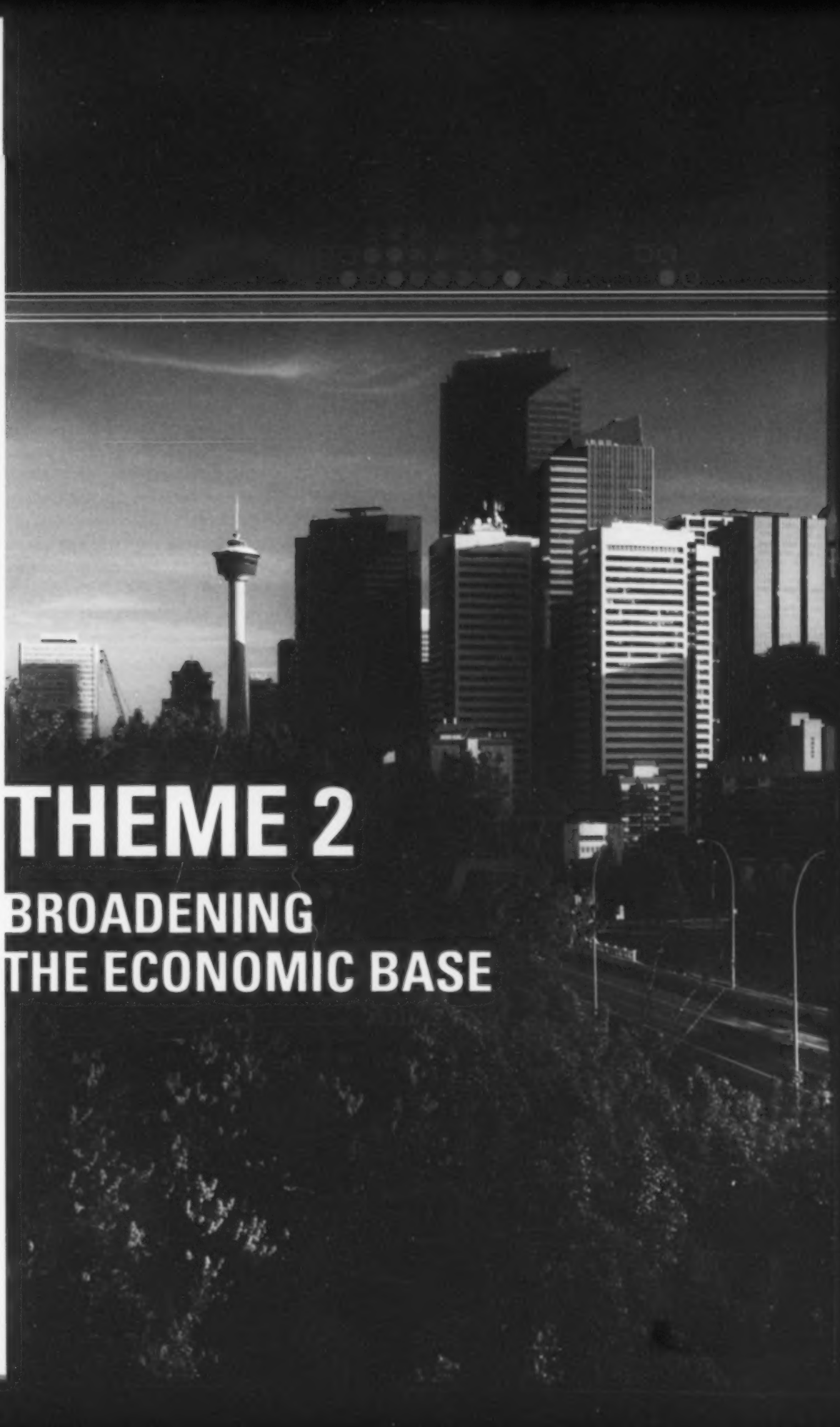
The existing Alberta Innovates – Energy and Environment Solutions would form the core of the Centre, and the Climate Change and Emissions Management Fund would be consolidated into it. There is good work already underway through these two vehicles which must be accelerated and funded at a level commensurate with the challenges to be addressed. Its annual budget might start at about $50-$100 million in the early years, but ramp up over time as demonstration and testing facilities are built, reaching as high as $1 billion per year.

The Centre is set up as an agency of government, operating at arm's-length and reporting to a minister. It must be led by a strong CEO with a management board and advisory structures that include industry, NGOs and government – as well as perspectives from outside of Alberta (e.g., Ontario, China, the U.S.). A key part of each board member's role is to serve as an active ambassador for the work of the Centre.

Priorities are established by the board based on the government's long-term integrated energy strategy and action plan. They could include over time:

- Working on strategies and solutions to make Alberta a global leader in carbon management broadly defined – including production; gasification; clean coal; emissions control; capture and storage; end use; market mechanisms such as effective pricing, offsets and investment
- Researching and testing alternate approaches to resource extraction (such as underground upgrading) to reduce emissions in electrical generation, to produce hydrogen for upgrading, and to allow natural gas to be redeployed for higher-value uses
- Innovating to address water management challenges associated with high-carbon energy production (e.g., tailings ponds and in situ extraction)
- Exploring the feasibility of applying small-scale nuclear to provide power for extraction
- Finding ways to lower costs of production and maintain economic competitiveness
- Identifying opportunities to apply innovations required for high-carbon solutions to other forms of energy
- Promoting the development of related sectors such as environmental and oil field services
- Expanding its focus beyond bitumen and coal to explore potential opportunities related to shale gas and enhanced recovery of conventional oil

The Centre brings together the disparate efforts underway to solve critical issues related to high-carbon energy, focuses them on a strategic agenda with clear deliverables, and accelerates action with funding commensurate to the challenges.



THEME 2

BROADENING THE ECONOMIC BASE

BROADENING THE ECONOMIC BASE

We need to reduce the vulnerability that comes with heavy reliance on energy sales to only one market, the U.S. – by applying knowledge in new ways to get greater value from all our natural and human resources; delivering new products and services into new markets

Alberta has recognized the need to broaden the province's economic base for six decades, and yet success remains elusive. Alberta is not alone in this: very few natural-resource-based jurisdictions have been able to diversify. But the Council believes doing so is urgent, critical and possible. Alberta's substantial human, natural and financial resources will enable the province to leapfrog ahead in developing new industries if we make choices and sustain a long-term commitment.

We must:

- Establish a government oversight structure with accountability for working with industry to broaden the economic base
- Invest public funds strategically in a very small number of areas for maximum return
- Assess the strength of Alberta's innovation ecosystem and fill in gaps
- Build world-class, globally connected expertise and research capability in areas of importance to Alberta
- Undertake industry-government collaboration to avoid extreme overheating of the economy

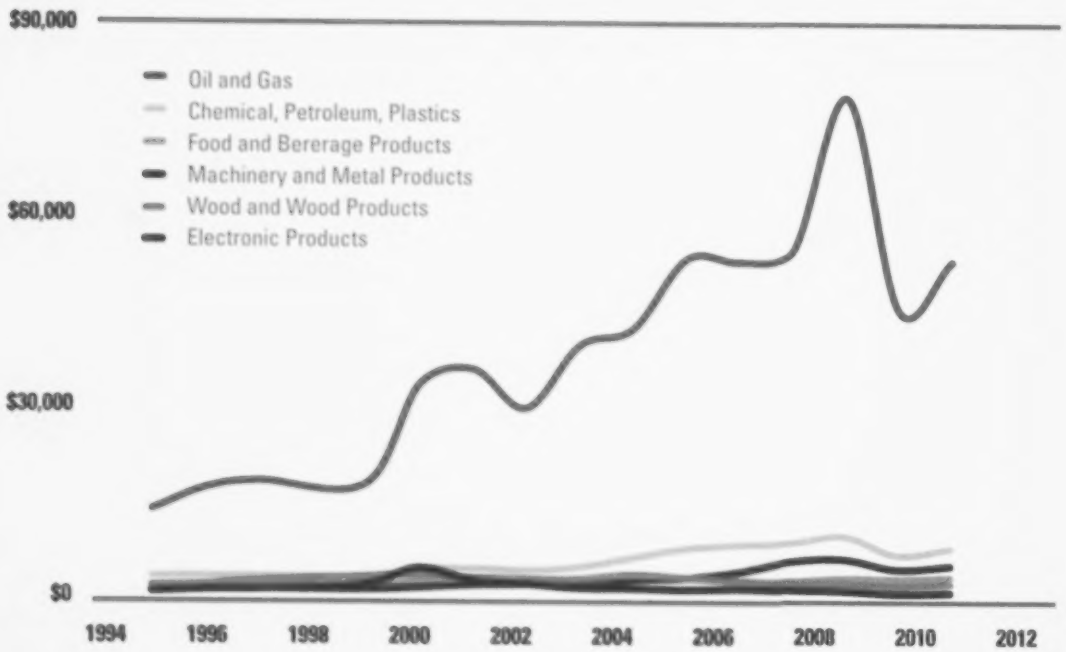
Improving Alberta's ability to use knowledge and technology to create commercially viable innovation that meets a need or creates a new market will be key. Our flagship initiative is the establishment of an Alberta Institute for Advanced Technology (AIAT) with a sole focus on commercially oriented research to create new products, processes, services and companies. The intent is to create the kind of applied research institution where entrepreneurial scientists from around the globe bring their knowledge – and their dreams of changing the world and becoming wealthy.

A make-or-break imperative

Broadening the economic base is just as critical to Alberta's economic future as continued access to profitable markets for oil sands exports. We must emphasize once more that this is not because Alberta is going to run out of hydrocarbon resources in the foreseeable future. It is because almost total reliance on them makes the province vulnerable.

We have pointed to multiple potential developments that could threaten our energy sector in the coming decades: global economic slowdown, disruptive technology, alternate supplies flooding the market with lower-cost oil or lower-emission oil, environmental backlash and growing regulation that drives up the cost of oil sands production. Should any of these come to pass, no other sector of the Alberta economy is currently in a position to replace the jobs and wealth created by the energy sector.

ALBERTA EXPORTS MILLIONS (CURRENT $)



Data source: GoA, 2010a

FROM RESOURCE DEPENDENCE TO HIGH-TECH HUB: THE STORY OF TEXAS

Texas is an example of a subnational jurisdiction that has succeeded in transforming from a reliance on cattle, cotton, lumber and oil to a leader in knowledge-based industries. It is now home to clusters in advanced manufacturing (nanotechnology, semiconductors and automobiles), aerospace and defence, biotech and life sciences, information and computer technology.

Texas claimed nine of the top sixteen spots in the 2009 Milken Institute/Greenstreet Real Estate Partners Best Performing Cities Index – which ranks U.S. cites according to job creation, technology output growth, employment and salary growth. The #1 ranking in the country went to Austin-Round Rock.

Austin's story shows that a region dependent on oil and gas can develop into a high-tech hub. In the 1980s, the area was struggling with very low prices for its commodity products and a real estate crash. Local leaders took stock of the assets on hand to turn the economy around. They decided their strengths were a young, highly educated work force; local universities and superb research facilities; an attractive quality of life; and a government that was ready to act.

They saw their fundamental challenge as forging partnerships among government, universities and industry to effectively link scientific research with technology commercialization. They designed and implemented a strategy that included attracting companies to the region, building new companies and helping local companies grow. They identified and developed the community infrastructure required to do this successfully: talent, technology, capital and know-how.

A new Austin Technology Incubator played a key role in stabilizing high-risk, high-tech companies by assisting them to solidify their management teams, secure adequate financing and get their products to market. Austin has become a recognized leader in biosciences/medical, information and communication technologies, and nanotechnology.

> The Stone Age did not end for lack of stone, and the Oil Age will end long before the world runs out of oil.
>
> Sheik Yamani, former oil minister of Saudi Arabia

We believe this is an unacceptable economic risk that any credible long-term strategy must address. We also recognize that broadening the economic base of a natural resource jurisdiction is difficult. It can be done, but we know of no magic formula for growing new industry sectors overnight.

Singapore, Taiwan and Finland are examples of jurisdictions that have decided at a national level how they want to shape their economic future and are succeeding in doing so. Faced with significant threats to their prosperity, they analyzed where they could best compete in global markets and made choices. They put in place supportive public policy, leading-edge institutions and financial infrastructure to attract businesses and support business growth. They established strong government oversight to track market changes and strengthen their capacity to respond quickly – adjusting public policy frameworks to better compete at the jurisdictional level for capital, companies and entrepreneurial talent. They understood from the outset that it would take decades rather than years to see substantial transformation of their economies.

Economies based on natural resources tend to struggle more to diversify than those that have fewer natural resources, because the imperative for doing so can be masked or forgotten during resource booms. To secure long-term prosperity, Alberta must take action now to escape from this trap.

The effort must start with a clear vision of what we want to achieve as a province within five years, within ten or twenty years. We must recognize the need for patience and commitment over several decades. Success will require sustained focus and substantial investment from both industry and government. It will require bold moves by

WHERE TO START

government to create the conditions for growth. It may involve industry collaboration in areas such as pre-competitive research – including global market intelligence gathering – to strengthen the ability of Alberta companies to compete as individual entities in a global arena.

Throughout this section we identify places to start in the effort to broaden the economic base – focusing on areas where the province has inherent strengths now, building a supportive public policy framework, investing in infrastructure and people, attracting capital and companies. We must underscore at the outset that while it is the private sector that actually creates wealth, we believe there is an important role for government to play in creating an enabling environment and accelerating economic transformation. Many jurisdictions have successfully implemented diverse models of doing this. Alberta can learn from their experience.

Establish a government oversight structure with accountability for working with industry to broaden the economic base

In Alberta, accountability for economic development is currently dispersed among multiple departments with limited resources. An economy seeking a fundamental transformation requires more focused government accountability.

Design and establish within government an oversight structure that recognizes this will be a long-term effort involving multiple stakeholders, and ultimately driven by the choices of business leaders and investors. Build government capacity to monitor changes in the global business context and respond quickly with appropriate public policy, as well as targeted infrastructure investments to support the transformation.

Take the lead in initiating dialogue and collective action among key players to remove barriers to economic growth in new areas.

Beyond energy exports – where the opportunities lie

We have noted that the sale of energy accounts for about two-thirds of Alberta's export revenue. Approximately 90% of all Alberta's exports currently consist of primary resource commodities and value-added products derived from them. Most of our manufacturing exports are based on our energy, agriculture and forestry commodities: food and beverages, wood products, pulp and paper, chemicals, petroleum and coal products, plastics and fertilizer products manufactured from hydrocarbon resources, machinery and equipment for the energy industry. Other sectors have also emerged from our natural resource wealth: beautiful landscapes and mountains support an important tourism industry, and play a role in attracting film and television business.

This is consistent with the principle of building on strengths. Successful jurisdictions look for areas where they have inherent competitive advantage – because of resources, geography, infrastructure, critical mass of expertise. Companies analyze markets to understand what potential customers want or might be convinced they need. They do not invest heavily in building businesses or creating new products and services before they have reasonable confidence they will be able to sell these profitably.

Much work has been done in Alberta to identify broad areas of strength in which knowledge and emerging technology could be applied in new ways to secure higher value and business growth. Here we highlight immediate opportunities to start building for long-term economic expansion in a few key areas:

- **Exporting expertise and technology/equipment related to high-carbon energy production and associated environmental challenges:** At least half of Alberta's current value-added exports derive from oil and gas: petrochemicals, machinery and equipment, and consulting services. Alberta has developed a robust services sector to support the resource and energy industry, with deep expertise in drilling, recovery, upgrading, refining and construction, environmental compliance. Such expertise has export potential to countries like Brazil, Russia, India and China that are seeking technical assistance in collaborative projects. This sector should be ripe for expansion, especially if heavy oil projects around the world are needed to bridge the energy gap until lower-carbon fuels are commercially viable. The Global Centre for Energy proposed in Theme 1 should serve as a source of exportable innovations that address such environmental challenges as carbon management and water use.

> If Alberta is to continue to have one of the world's most vibrant and sustainable economies over the long term…it will have to learn to compete in global markets. While doing this, it will also have to learn how to deal with a variety of factors, including relatively high business costs, a potential shortage of labour (particularly skilled labour), small local and domestic markets, a cyclical economy, and the desire to balance economic growth against concerns over the quality of life and the environment.
>
> Submission to Council from the Edmonton Economic Development Corporation

> **Expanding agriculture and forestry, putting a greater focus on higher-value food and fibre opportunities:** The more pessimistic climate change scenarios suggest that within the next three decades, Alberta could be among the few regions in the world still capable of producing food in excess of domestic needs. Alberta is in reasonable export proximity to growing markets in Asia for safe, higher-end food products, especially meat. There are opportunities to expand food processing and migrate into high-value food production – including products engineered to provide health benefits (nutraceuticals). There may be opportunities to develop and export agriculture-related technology – innovations that improve yield and reduce water use; new ways to meet evolving global standards related to food safety and healthy foods.

Alberta's forest industry is also well positioned to take advantage of potential emerging opportunities – such as meeting increasing demand for wood products from Asia, where a growing middle class is building bigger houses with high wood content and purchasing wood furniture. Forestry companies could offer ecological services to oil and gas companies seeking to return disturbed land to a natural state. Scientific advances are opening the doors to new product lines. Alberta researchers, for example, are bringing nanotechnology together with wood pulp to produce a new substance called nanocrystalline cellulose that has useful applications in industries as diverse as conventional oil and gas drilling, electronics, specialty paper production and coating. Another route that could make a substantial contribution to Alberta's reputation as a responsible natural resource steward would be to promote the environmental value of Alberta's forests – their role as a carbon sink; and in maintaining biodiversity, migratory routes, wetlands, eco-tourism.

> **Medical and biotechnology:** Throughout history, developments in human ability to read and manage various types of "code" have opened up exciting new economic and social possibilities. The agricultural revolution was furthered by the development of written language that enabled the capture and sharing of knowledge. The development of binary code gave birth to the digital revolution and today's information and communication technologies (ICT). We believe a next great transformation is underway in the field of life sciences, driven by genomics and the ability to work with DNA code. Alberta has an opportunity now, while the revolution is still in its early stages, to get into this game in a big way and earn substantial wealth.

Alberta has strengths in medical sciences, especially in cardiovascular health, brain development, diabetes, biomedical technologies, infectious diseases, bone and joint health. Significant investments have been made in modern facilities and equipment at Alberta's universities and medical research centres.

The trend among large players in the pharmaceutical and biotechnology industries to outsource R&D to small- and medium-sized firms opens up opportunities for emerging biotech firms to grow and integrate into major distribution channels. The fact that health care in the province is provided through a single system should make it relatively easy for businesses to develop a local market for new medical devices and secure partners for clinical trials.

There are also opportunities for synergies and crossover applications with other sectors of strength. Imaging technology used in the energy sector is being successfully applied to improving medical imaging. The agriculture and forestry sectors are well placed to move into profitable new businesses providing the biomass and fibre used in the production of advanced materials, chemicals, drugs and nutraceuticals.

WHERE TO START

Information and communication technologies are essential underpinnings of all these areas. Alberta is home to a growing ICT sector that can both contribute to breakthroughs in other sectors and be a source of export revenue in its own right. For example, Alberta companies have significant expertise in geomatics that can be applied in the resource sector here and exported. Albertan entrepreneurs are producing gaming software and devices, applications for communication devices, Smart Boards, unmanned vehicles, security applications and software to support business processes such as accounting and inventory.

Entrepreneurs, business leaders and investors will decide where in this broad spectrum lie the greatest opportunities for building profitable businesses with a viable Alberta component – recognizing the tendency we have noted for today's business models to feature multiple locations and global interconnections. One consideration is that it may be easier to get ahead of the curve in emerging areas of economic growth than to fight a way into mature industries with well-established supply chains, governed by multinationals with which Alberta firms have no existing relationships.

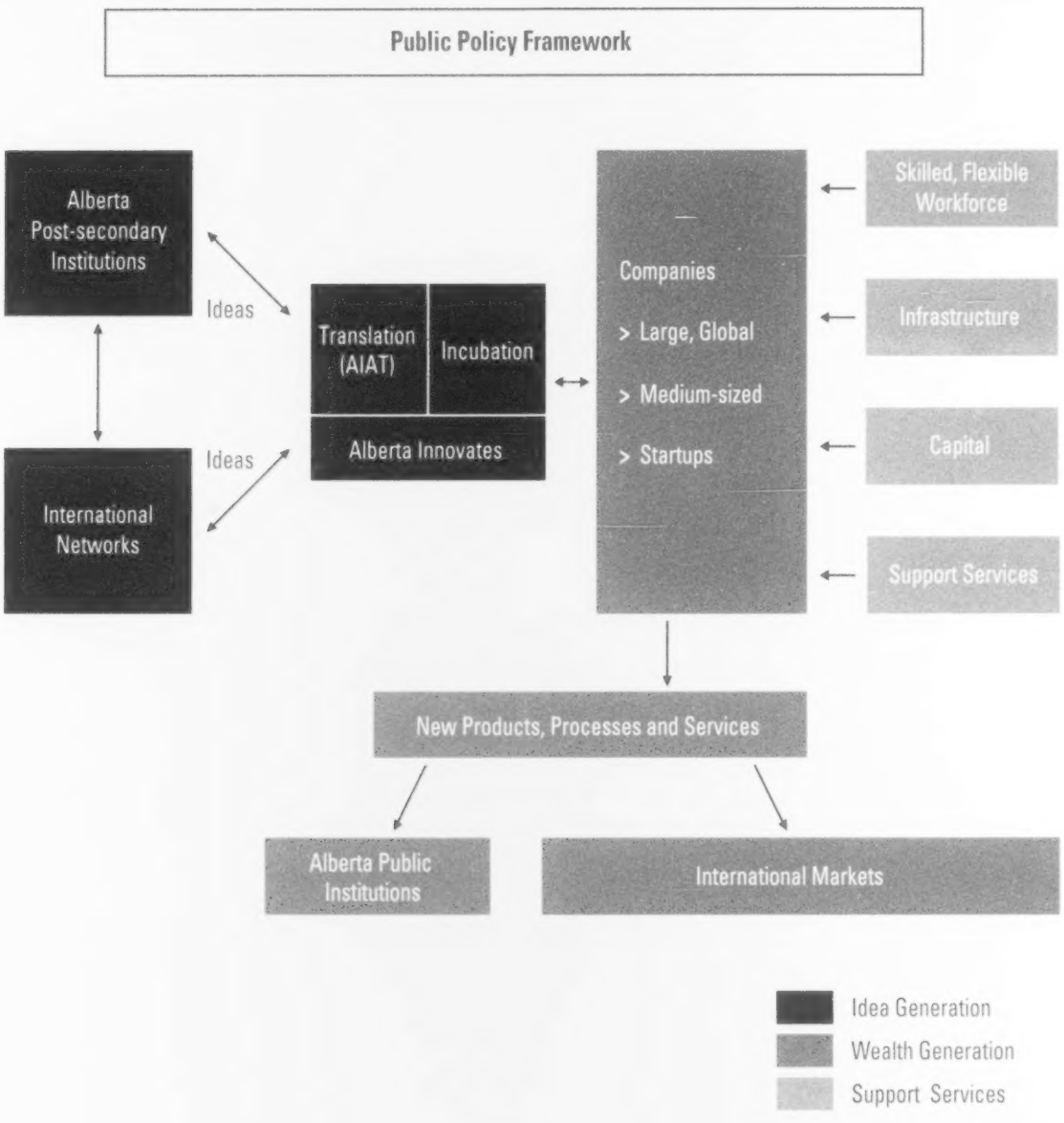
The Alberta government will need to decide where targeted public investments can enable and support private sector economic growth in high-potential areas for the province overall.

Invest public funds strategically in a very small number of areas for maximum return

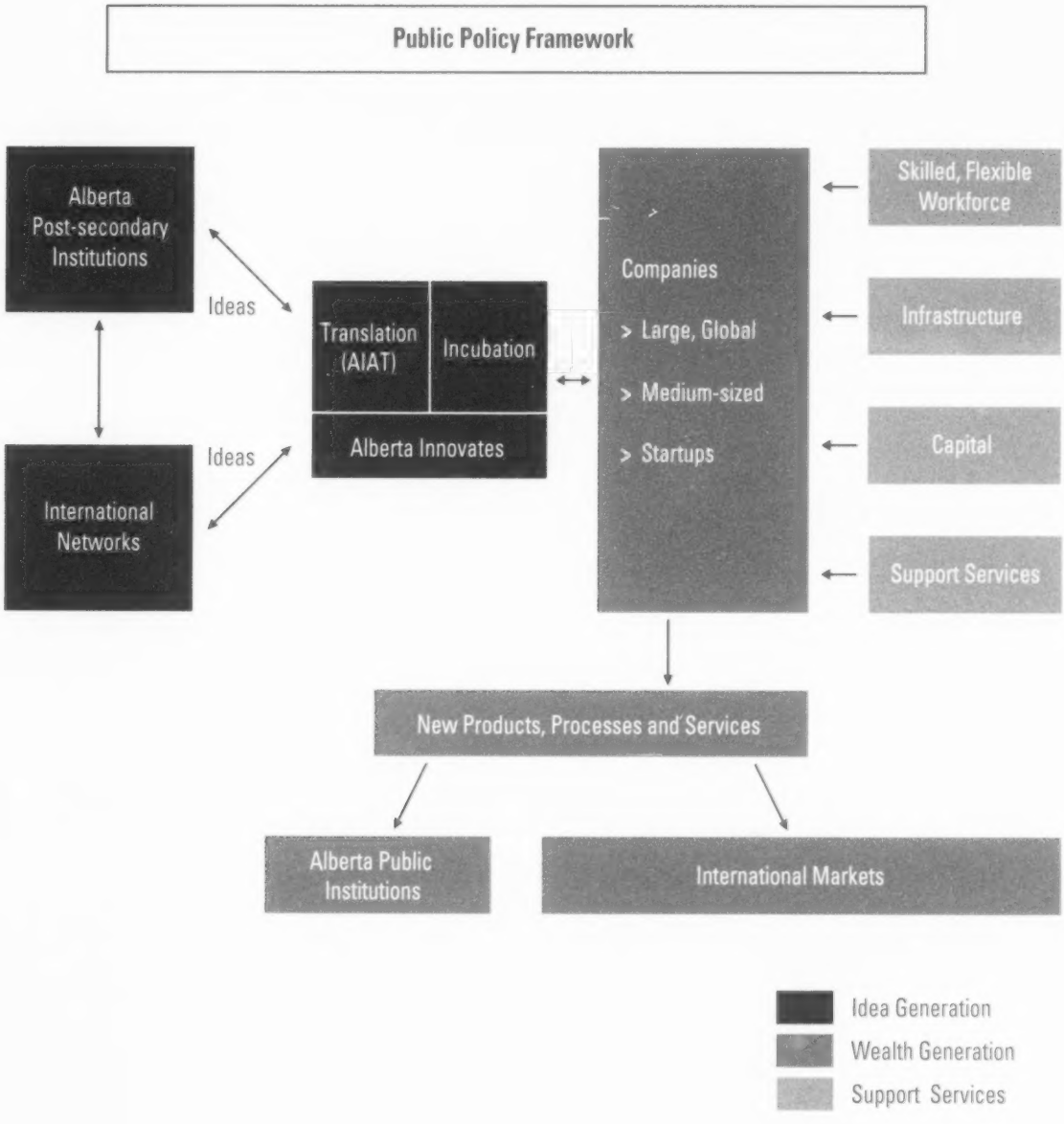
Build momentum by ramping up public funding for innovation in selected strategic areas within our broad sectors of strength. Focus on areas where Alberta can "go big" – where we have or can create a global competitive edge. Identify these through industry-government dialogue. Use roadmapping efforts, such as that now underway for forest products and pulp, to catalogue what is in place and what else is required to secure jurisdictional advantage. Seek areas where we have or can attract one or more companies that are in the top three firms in their category world-wide, where we are already doing business globally, where we have a cluster of smaller companies in related businesses, where we have a good base of research capability and qualified people.

Make funding levels commensurate with the challenge of growing businesses in the sector to be globally competitive. Leverage the Alberta Innovates knowledge and infrastructure to inform decision-making and channel funding for innovation.

THE INNOVATION ECOSYSTEM



THE INNOVATION ECOSYSTEM



The innovation ecosystem

Home-grown businesses thrive where the soil is fertile. Businesses seeking a place in the world to grow are attracted to jurisdictions where conditions are right to support that growth. There is increasing recognition that nurturing an innovation-based economy requires an innovation "ecosystem," in which multiple elements work together to create conditions in which businesses of all sizes have the best opportunity to thrive.

A focus on any one element to the exclusion of others delivers poor results. The entire system can fail if one key component is neglected. In Canada, the weak links have tended to be "translation" (turning a basic research discovery into a viable business application) and "incubation" (nurturing newborn businesses through the fragile startup stages).

A healthy innovation ecosystem has a mix of multinational and domestic enterprises, and of large, medium-sized and smaller startup companies. Startups often grow in clusters around large "anchor" companies, as opportunities to provide an essential service or manufacture a component on which the established company relies are recognized and exploited. Clusters of companies in related fields are well-positioned to attract talent and to cross-pollinate ideas as employees move among businesses in the sector.

Alberta has been working to build this kind of innovation ecosystem, and good progress is being made. The establishment by the government of Alberta of "Alberta Innovates," a system of organizations to develop and manage research and technology commercialization programs, is one example. But there are gaps. We say more in later sections about what must be done to ensure the availability of a skilled, flexible workforce and a strong infrastructure platform to support economic growth – including electricity, water, land, transportation and communication.

At the end of the day, the system lives or dies on industry choices – the opportunities entrepreneurs and leaders of large businesses see, the investments they decide to make in R&D and in building Alberta-based businesses, their success in forging global relationships and exploiting global markets. Here we focus on what we see as government's role in establishing the framework and taking targeted action to encourage and support the growth of new commercial sectors.

Public policy is one factor that can either enable or impede growth of new economic activity. Researchers and companies alike look for an intellectual property (IP) policy that makes the movement of ideas between the creators and users straightforward, predictable and fair. Jurisdictions seeking to incent economic growth seek to craft incentives designed to encourage local creators of commercially valuable IP to build their business locally – like the "patent box" scheme being contemplated in the U.K.[21]

Governments wishing to stimulate innovation use procurement policies to give local startups a first sale, and to give companies of any size an opportunity to demonstrate the value of new products or services. An area that has tended to be overlooked in this province is the responsibility of government ministries to contribute to economic growth in their sector of focus, over and above their accountability for delivering public services. The health ministry, for example, has a key role to play in creating a successful commercial health industry. It can partner with industry in the development of new diagnostics, services and interventions. It can mobilize its disease information base to support both discovery and development in health-related fields.

> Somewhere between 4% and 10% of all new companies become high-growth firms, but they create the majority of jobs. In fact, the U.S. data show that in a given year, the top 1% of firms generate roughly 40% of new jobs. And the top 5% contribute two-thirds of all new jobs.
>
> Ilse Treurnicht, CEO, MaRS Discovery District[22]

21 HM Treasury, 2010.
22 Treurnicht, 2011.

WHERE TO START

Governments seeking to nurture successful innovation ecosystems think about what could be getting in the way. They take a hard look at longstanding practices to determine whether such practices support today's strategic economic goals and how they might be changed if they don't. They consider strategies for building local supply of critical talent – growing or importing entrepreneurs, financiers and business leaders experienced in taking ideas from startup to sustained success.

Governments also may invest in infrastructure specifically purposed to promote the growth of emerging economic activity. They locate business incubators next to research facilities, so entrepreneurial researchers with what might be a good commercial idea can be supported with space, coaching, business services (legal, financial, marketing, business planning), shared production and testing facilities, opportunities to interact with fellow entrepreneurs. They create industrial/technology parks or malls for incubator graduates that have passed the startup stage and need more space or services.

One critical issue in Alberta today is the scarcity of risk capital prepared to wait out the long gestation periods that many small technology-based companies work through before they become profitable. The Alberta Enterprise Corporation has a mandate to bring more venture capital firms to Alberta, but availability of very early stage (angel and seed) capital remains a gap in the current system. So does availability of expert advice from seasoned investors skilled in mentoring successful startups, and financial services geared specifically to startup businesses in knowledge-based enterprises.

We suggest a new model is required of public sector involvement in taking innovative discoveries further down the path to commercialization before they turn to conventional sources of investment and financing. This is one aspect of a larger and very important gap in the translation/incubation element of the system in Alberta (and elsewhere) – the process of translating discoveries into applications and turning them into profitable businesses. We will address that gap at the end of this section with our flagship Alberta Institute for Advanced Technology (AIAT).

Assess the strength of Alberta's innovation ecosystem and fill in gaps

Review Alberta's public policy framework to ensure the right policies are in place to incent innovation. Remove any policy barriers identified. Implement a pan-Alberta IP policy that vests ownership in the inventor.

Ensure that public policy encourages investment in innovation, from seed or angel capital for companies in the earliest stages of development to venture capital for ongoing growth. Invest in expanding the system of startup incubators and industrial/technology parks or malls for incubator graduates. Work to attract one or two large or fast-growing companies to the province to anchor targeted sectors.

Encourage and support international linkages and partnerships.

WHERE TO START

World-class research capability and highly qualified people

Universities are a critical foundation of a knowledge-based economy. All the high-potential opportunities we see for Alberta to expand economic activity into new areas and broaden the base are knowledge-intensive. A fundamental underpinning is basic, curiosity-driven research that leads to the discovery of new knowledge. This is what most university-based researchers are expert at doing. Universities and colleges also train the cadre of highly qualified people who apply their skills and knowledge within industry.

This does not mean Alberta must build research and expert training capability in all disciplines. No matter how much public investment we make in our universities, it will never be enough to make them world-class in every discipline. Spreading investment too thinly across too many areas leads to mediocrity. We must choose our focus – those areas most important for Alberta's future – and invest there. A reputation for excellence in selected areas will make it easier for Alberta-based researchers to be welcomed into global networks with complementary research strengths.

Build world-class, globally connected expertise and research capability in areas of importance to Alberta

Focus each university on a limited number of fields – with differing specialization for each university. Award research funding competitively based on alignment with areas of focus and a track record of excellence.

Actively look for opportunities to participate in global research networks. Attract high-profile researchers from other countries and encourage Albertan researchers to spend time outside the province.

Managing a fundamental risk

Why do economies based on natural resources struggle so much to develop diverse value-added sectors? One reason is that booms based on a sudden rise in commodity prices tend to "hollow out" other sectors. People and investment are attracted to the booming sector, away from other parts of the economy. When the boom falters, other sectors too are weaker than they were before, and ill-equipped to fill the gap. They have become less competitive, because shortages of labour and materials during the boom have driven up costs.

Economies grown accustomed to boom-and-bust cycles have a tendency toward short-term focus on making the most of the good times while they last. Public spending rises in the general euphoria of money rolling into the province. Much of it usually goes towards gratifying immediate desires, rather than investing in future prosperity.

Energy booms can leave unfortunate social legacies that make it more difficult to attract other types of businesses to the province or grow indigenous industries. Rising costs make housing unaffordable. Teenagers may leave school for high-paying, short-term jobs, reducing the pool of well-educated workers available over the long term. Rapidly growing cities find it difficult to build physical and social infrastructure quickly enough to keep up. Tensions rise and the incidence of violent crime goes up. There is public money available to address these problems, but not enough time or attention to devote to careful planning of social programs that have long-term impact – and that can be sustained without an energy windfall.

Businesses are wary about investing in non-energy sectors in such jurisdictions. Established resource-based industries also feel the negative impact. Some element of volatility is inevitable in any economy highly dependent on commodity products with prices set on world markets. But it is in the best interests of all Albertans that we avoid extreme overheating of the economy.

> Our children and their children will depend on our current government having the intestinal fortitude to make the tough decisions that will demonstrate vision and forethought – to provide the climate that fosters new ideas and creativity in leading the world in these new [emerging and Green] industries.
>
> Submission to Council from André Hamel

WHERE TO START

We see a clear need but no easy answer as to how to do this. Some believe this should be left to market forces and the private sector. The challenge inherently incents innovation on the part of industry to lower costs and make their businesses more nimble – to build in flexibility and pace development to reflect market conditions. This is true for energy companies benefitting from the boom but less so for other sectors – especially for the more mobile companies that are not dependent on proximity of resources and can relocate elsewhere if costs get too high in Alberta.

Others, therefore, see overheating as a societal and economic issue that warrants government intervention. Government can take a counter-cyclical approach to its own investment in building infrastructure to hold down prices during booms and preserve jobs during downturns, balancing this strategy against the need for essential infrastructure to keep up with growth. It can seek to attract workers to the province to help labour supply meet demand and hold wages to competitive levels. It can seek to use undertakings and regulatory processes to pace development appropriately.

Undertake industry-government collaboration to avoid extreme overheating of the economy

For Alberta to succeed in broadening the economic base and creating a more resilient economy for the future, it will be important for industry and government to continue to seek ways to mitigate the impact of energy booms on emerging sectors and keep the more mobile companies in Alberta.

Promote more dialogue among key stakeholders and Albertans generally to build public consensus on how to manage this fundamental problem.

FLAGSHIP

AN ALBERTA INSTITUTE FOR ADVANCED TECHNOLOGY (AIAT)

THE RISK: That the Alberta economy remains almost totally dependent on energy exports, and vulnerable to any disruption that threatens the profitability of the oil sands

THE OPPORTUNITY: Build on Alberta's strengths and leverage emerging technology to broaden Alberta's economic base

THE IDEA: Create an Alberta Institute for Advanced Technology (AIAT) with a sole focus on commercially oriented innovative research – filling a key gap in the innovation ecosystem. Attract entrepreneurial scientists and postgraduates who will use that research to create new products, processes, services and companies. Strengthen the innovation ecosystem to support AIAT's work and ensure these businesses prosper, generating wealth for their founders and for Alberta

HOW DO WE SEE IT WORKING?

We envision AIAT as an applied research institute where bright and entrepreneurial scientists from around the globe translate basic discovery into applications of commercial value. It serves to fill the translation gap and strengthen the incubation function in Alberta's innovation system. No existing post-secondary institution in the province has commercialization as its central focus.

AIAT is home both to entrepreneurial scientists with a track record of commercializing discoveries and postgraduates who seek to learn from them and participate in creating such ventures. Scientists and postgraduate trainees alike are attracted by the opportunity to earn substantial revenue through consulting, technology spin-outs or participation in startup companies. They are active in networks of peers around the globe.

AIAT plays a role in addressing the issue of risk capital scarcity – ensuring that by the time new ventures seek funding from conventional sources, they are ready to offer returns on investment within acceptable time frames. It speeds up the cycle by applying expertise in the efficient and effective development of innovation from discovery through proof of principle through commercialization. It provides a home for very early stage ventures and seeks funding for them.

AIAT offers Applied Science postgraduate degrees (no undergraduate degrees) and makes substantial use of transfer credits, work-based learning credits and applied project credit. Its training agenda includes business and entrepreneurial skills. It provides long-term funding and fully equipped labs. Rewards for professors are performance-based – there is no system of tenure.

Whereas universities focus on curiosity-driven research and on graduating qualified people, AIAT is focused on experiential learning and preparation to start a business or apply knowledge in industry. While the Global Centre for Energy commissions work on solutions to specific problems of strategic importance to the energy sector, AIAT researchers are seeking the next generation of unexpected opportunities that will emerge through the interplay of knowledge from multiple disciplines.

In keeping with the principle of building on strengths, at the outset it will recruit scientists with knowledge relevant to emerging opportunities in the fields of energy and the environment, food and fibre, medical and biotechnology. It will need experts in fields such as electrical, biomedical and chemical engineering; water management; biotechnology and computing sciences.

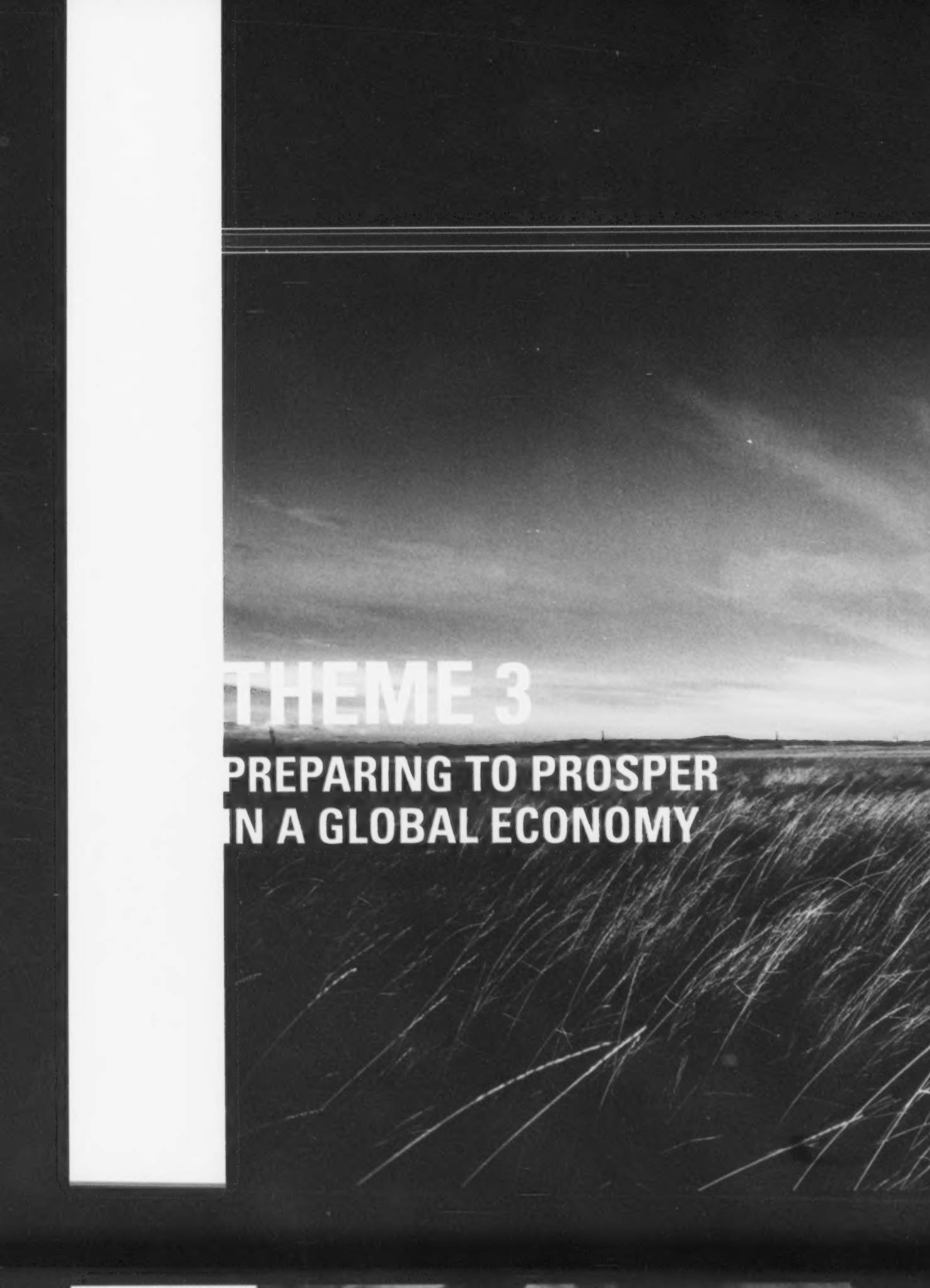
The key to AIAT's success will be its ability to attract a critical mass of top talent, ideally with experience in technology commercialization, locally and from around the globe. Finding such people will require an aggressive global campaign and search. AIAT needs people with intimate knowledge of market opportunities elsewhere in the world. It needs people who naturally develop global peer networks and who are skilled in establishing collaborative relationships with leading centres in Asia, Europe and South America.

Recruiting plans will be established by the small AIAT board and advisory committees with the requisite expertise to identify the specialized skills required to play successfully in areas of potential opportunity for Alberta. Once people are in place, however, they are given free rein to explore opportunities they see or can create, and an environment in which they can put their brainpower to work. Real breakthroughs come from unexpected directions, and are nurtured by the interaction of people with diverse knowledge and perspectives. Industry partners interested in collaborative work are another key ingredient.

Ideally, AIAT will be established with core funding from the Shaping the Future Fund. The fund will also entertain proposals for additional research program funding, backed by business cases. As an organization with an entrepreneurial bent, AIAT will constantly pursue opportunities for funding from diverse sources, including industry, risk capital investment, philanthropists and federal granting agencies where appropriate.

AIAT will not transform the Alberta economy overnight – it will be a long-term effort. That is why it's urgent to begin now in a big way, putting sufficient muscle behind the institute to build momentum for innovation. AIAT can learn from the success of similar institutions around the world, including Technion in Israel, the Fraunhofer Institute in Germany, the Industrial Technology Research Institute in Taiwan, Biopolis in Singapore, the Scripps Institute in the U.S., and the Strategic Centers for Science, Technology and Innovation in Finland.

With a critical mass of talented, entrepreneurial researchers filling a key gap in the innovation ecosystem, Alberta will make great strides forward in the quest to broaden the province's economic base.



THEME 3

PREPARING TO PROSPER IN A GLOBAL ECONOMY

PREPARING TO PROSPER IN A GLOBAL ECONOMY

Alberta needs all its citizens to develop the mindset and skills to thrive in today's world and drive economic growth – to be resilient, lifelong learners, healthy and productive, eager to achieve and perform, globally connected and informed

Success in realizing the full potential of our energy resources and broadening our economic base will require innovation. Innovation comes from people – talented people with the knowledge and ingenuity to solve problems in new ways or create possibilities where none existed before. Alberta's population is small and demographics are such that the local workforce will shrink in coming years. Insufficient labour supply to meet demand is already constraining economic growth.

We have significant advantages over much of the world – among them, access to healthy food and high-quality health care, a strong education system, an enviable quality of life, and economic opportunities that attract people to the province – but we also have challenges to address.

To secure our future prosperity, we must:

- Intensify efforts to make the early childhood development support system in Alberta more cohesive and coordinated – reducing overlaps and filling gaps – with a special focus on children who are most at risk
- Launch a high-profile, province-wide campaign to reverse the trend toward childhood obesity and prevent a crippling epidemic of chronic disease
- Evolve the education system to reflect the new requirements of a complex global economy – putting a strong focus on building a global perspective
- Make it easier to move in and out of formal learning systems, pursue multiple paths, and learn through life
- Work with the federal government to change the immigration system – to help address critical shortages of workers at all skill levels
- Engage Albertans living abroad – the diaspora – in connecting Alberta globally

The one demographic segment of our population that is young and growing is Aboriginal Albertans. We must accelerate action on ensuring these young people achieve parity of educational outcomes with non-Aboriginals – so they are able to benefit from opportunities the province offers, and contribute to the province as productive workers, engaged citizens and leaders. This is an economic imperative for the province as well as a social imperative, and our flagship focus.

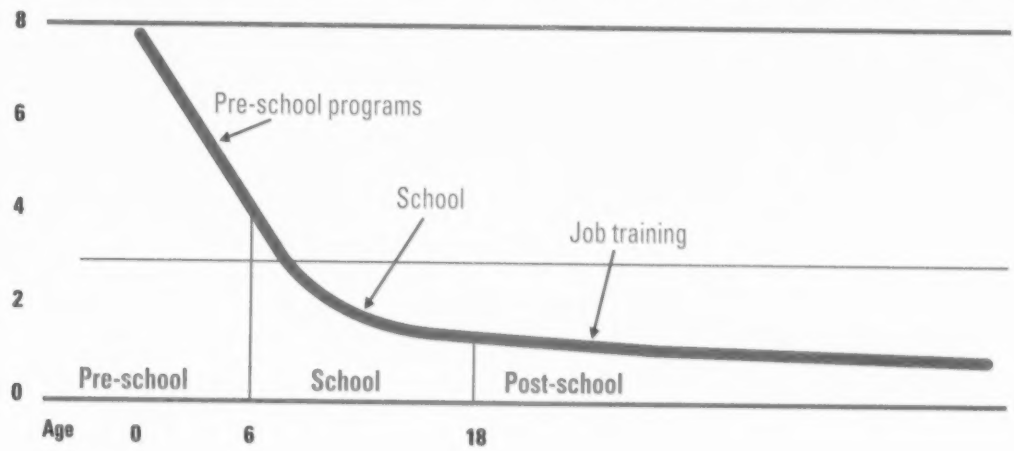
The best early start for all

Early childhood development is a critical issue for the whole community. It should be a matter of intense interest to government, business and economic leaders as well as educators, health care providers, social service agencies, parents and families. What children experience in the womb and before the age of six has a lifelong impact on their ability to participate in the economy and in society. Ensuring every child receives the best possible start is therefore an important investment in the future prosperity and quality of life for all in the province.

The early years are a very sensitive period for brain development. The foundation is laid for vision, hearing, emotional control, language and learning. For young children to develop essential abilities and skills, they need stimulating and nurturing living environments, as well as positive interactions with parents and caregivers.

Exposure to negative experiences in the early years has been linked to emotional, behavioural and physical health problems throughout childhood and into adulthood: delinquency, depression, obesity, diabetes, heart disease. Children not given a strong start to life grow into adults who are ill-equipped to contribute to Alberta's prosperity, and who put financial strain on the system through justice, health and social service costs.

RATES OF RETURN TO HUMAN DEVELOPMENT INVESTMENT ACROSS ALL AGES (RETURN PER $ INVESTED)



Source: Cunha et al., 2005.
A dollar invested in early childhood yields three times as much as a dollar invested in school-aged children, and eight times as much as a dollar for adult education.

WHERE TO START

For example, more than 23,000 Albertans suffer from Fetal Alcohol Spectrum Disorder (FASD) as a result of their mothers' actions during pregnancy. They will struggle throughout their lives with learning disabilities and difficulty with attention, memory, impulse control and problem-solving. They are susceptible to mental health problems, including addictions.[23]

Nearly 12,000 children currently require support from Alberta's child welfare system. Of these, 58% are Aboriginal (Aboriginal children make up only 10% of the overall population).[24]

There are many committed professionals working diligently to address issues and improve outcomes for youth and families in Alberta. Alberta Children and Youth Services, for example, funds a range of early childhood development and parenting programs, including a network of family resource centres and home visitation programs providing parenting education and support to at-risk families. Children and Youth Services is working with the ministries of education, health and wellness on a collaborative approach to early childhood development.

The absence of an explicit social policy for the province that crosses multiple disciplines results in duplication and complexity for service providers and clients alike. This is an area where government can take some immediate action to build alignment among all players with respect to priorities, implementation approaches and accountabilities.

> What happens in early childhood matters – not just for children but for all Albertans. Research confirms that children who have a good start in life are more likely to be happy, healthy and engaged learners; and as adults, they are likely to be independent, stable and productive within their communities.
>
> Submission to Council from André Corriveau, Alberta's Chief Medical Officer of Health

Intensify efforts to make the early childhood development support system in Alberta more cohesive and coordinated – reducing overlaps and filling gaps – with a special focus on children who are most at risk

Provide a frame for these efforts by establishing an interdisciplinary social policy for the province with maternal health/early childhood development as its starting point. Engage with the many social service agencies and community organizations working on the early childhood development front to determine how to make the most effective use of resources to deliver priority outcomes.

Ensure that health practitioners, social services staff and providers of employee assistance services are trained to identify at-risk mothers-to-be/new parents, and know how to get them the help they need – including support for dealing with addictions during pregnancy, coaching on parenting, nutrition programs and pre-school learning opportunities for the children. Expand public education on the importance of the first six years to a child's future.

23 FASD, 2008.
24 Data provided by Alberta Children and Youth Services.

Preventing a crippling epidemic

Obesity rates are a leading indicator of a rise in chronic disease. The increasing incidence of adult-onset (type 2) diabetes has been directly linked to rising numbers of overweight or obese adults. More cases of diabetes mean mounting rates of cardiovascular disease, stroke and kidney disease.

In that context, the rapid rise of obesity in Alberta's youth – from 16.5% to 22.8% in just three years – is alarming, and poses a real risk to Alberta's future prosperity. The province needs healthy citizens who make a positive contribution to the economic balance sheet rather than costing the province in medical bills and lost productivity. If current trends continue, Alberta 2040 could be populated by a generation of adults whose lives and ability to work are constrained by chronic disease.

All Albertans must understand how important it is to reverse the trend. While multiple factors affect an individual's tendency to be overweight or obese, the World Health Organization makes the case that even modest lifestyle changes can bring about significant health improvements. Reducing alcohol and tobacco use, choosing healthier food (avoiding salt, sugar and trans fats) and increasing physical activity all contribute to the prevention of chronic disease.

THE WARNING SIGNALS

> Rise in incidence of **diabetes** in Alberta's population from 2003-09: **3.6% ➧ 4.8%**
> Rise in incidence of **high blood pressure** in Alberta's population from 2003-09: **12.3% ➧ 14.6%**
> Rise in self-reported **obesity in Albertan adults** from 2003-09: **51% ➧ 55%**
> Rise in self-reported **obesity in Albertan youth** from 2007-09: **16.5% ➧ 22.8%**

Source: Statistics Canada, 2011.

WHERE TO START

Physical activity has also been credited with countering depression and raising energy levels, delaying the onset of Alzheimer's disease, improving learning capacity and academic achievement, countering the effects of attention deficit disorder, helping children manage anger, and reducing the incidence of bullying in schools.[25]

It is impossible to force a child, an adult or a society to consistently make healthy lifestyle choices. The campaign against smoking provides evidence, however, that a judicious combination of public education and legislation can succeed in bringing about large-scale behavioural change.

Launch a high-profile, province-wide campaign to reverse the trend toward childhood obesity and prevent a crippling epidemic of chronic disease

Our focus is on children because they are Alberta's future, because their lifestyle habits are less engrained, and because, once convinced of a cause, they can become key influencers of adults in their lives. Mount a youth- and parent-focused education campaign on the long-term dangers of obesity and what individuals can do to protect their own health.

Make a period of daily physical activity mandatory for every school child in Alberta from kindergarten to grade twelve, and audit regularly to make sure this is happening. Bolster affordable, accessible, after-school community fitness programs for young people. Introduce school- and community-based schemes to use peers and social media to encourage regular participation in fitness activities.

Make healthy eating a part of school curriculum and an attractive option in cafeterias. Have schools (or community centres or public health units) host sessions for parents on practical ways to build healthy eating practices into busy lives.

At a provincial level, track and communicate the results of every step taken, and adjust efforts over time to reflect what has been proven to work here and elsewhere.

25 Ratey & Hagerman, 2008.

New skills and a global mindset

Developments in technology are rapidly making some low-skilled jobs obsolete and creating more complex new jobs, requiring higher skill levels. Around the world, education is increasingly recognized as essential to prosperity. In most countries and most industries, a high-school diploma is the minimum qualification to get beyond a minimum wage job. The higher-paying jobs require much more sophisticated levels of language, mathematical, technological, scientific, financial and cultural literacy. Education systems and attitudes towards education must evolve as a result.

In 2009, over 4,000 Albertans participated in a public dialogue called Inspiring Education. One of the results was a new articulation of the competencies an "educated Albertan" must possess to thrive today and into the future. It starts from traditional subject/discipline knowledge, but emphasizes the importance of skills in areas such as critical thinking and problem-solving, creativity and innovation, collaboration and leadership, global and environmental awareness.

> We need to create a paradigm shift in Alberta so that everyone understands that having an educated population is a societal benefit, not an individual good....In short, we need to focus less on the Alberta advantage, and start thinking more about the Albertan advantage.
>
> Submission to Council from Steven Kwasny, Chair, Alberta Students' Executive Council

WHERE TO START

We agree these are important attributes. We would also emphasize that the economic opportunities we see ahead for Alberta will require people with specialized training in engineering, science and technology. Technology will continue to change how work is done in agriculture and forestry, trades and commerce, education and health care – in all sectors, to a greater or lesser extent.

We will need more entrepreneurs, financiers and managers. We need people who are comfortable doing business globally, with multiple languages and cross-cultural skills. To seize the opportunities offered by an economy that functions as an interconnected grid, people need to be attuned to the world and prepared to participate in global networks. The education system at all levels has an important role to play in fostering this mindset.

Evolve the education system to reflect the new requirements of a complex global economy – putting a strong focus on building a global perspective

The *Inspiring Action on Education* report provides a roadmap for change in the K-12 education system, setting out policy directions on topics ranging from personalized learning through standards and performance, governance, curriculum, teaching practices, technology, parental and community engagement. Continue the focus on pursuing essential change in the education system, while maintaining what is working well now – including charter schools that provide choices for students wishing to specialize in a particular area or seeking an alternate learning environment.

Make it a priority to build students' global perspective, strengthening learning about the world and Alberta's place in it in the K-12 curriculum. Expand scholarship programs that fund Albertans to study abroad and students from elsewhere to pursue their education in Alberta. Make it mandatory for all post-secondary students to earn credits with a "global" designation – whether these be courses taken at their local institution or terms studying/working in another country.

Building resilience by learning to learn

We must also recognize that the people best able to stay relevant and resilient in a world that continues to change rapidly have a hunger and a passion for learning throughout their lives. The notion of a linear progression from kindergarten through post-secondary to work is out of sync with the realities of an economy in which new kinds of jobs are being created every day. It is impossible for children to be certain about what they will be when they grow up. There's a good chance their work will change radically many times through their lifetimes.

Albertans must be prepared to embrace formal and informal learning opportunities at every age and stage of their lives. Obstacles preventing them from doing so must be removed. The Alberta economy needs people to keep learning.

Today, nearly 14% of Alberta's labour force does not have a high school diploma. Only 61% of Albertans have post-secondary education, and less than 7% have a graduate degree.[26] Alberta has a problem not found in most jurisdictions, in that one of the "barriers" to staying in school is the opportunity energy booms present to young people to earn attractive salaries doing jobs that don't require formal education. It is easy to understand why the immediate prospect of money and "freedom" trumps classrooms and homework for many in their teens or early twenties. But given the shifts underway in the world and the province, it would be dangerous to decide this is the end of the learning road.

The next important opportunity comes with supporting youth to complete high school. Youth seeking to complete their high school diploma or equivalency after turning 20 do not fall under Alberta Education's mandate and consequently face significant tuition costs of up to $520 per course, virtually the same tuition cost as a single university class. This compares to $60 per course for those 19 and under who can access the publicly funded school system.

Submission to Council from Ruth Ramsden-Wood, President, United Way of Calgary and Area

26 Statistics Canada, 2009

WHERE TO START

One way of addressing the issue is to provide more opportunities for young people to earn and learn at the same time. An initiative called *CAREERS: The Next Generation* is a good example. It's an industry-driven program (supported by provincial government funding) that lets young people test-drive careers in the skilled trades, technologies and health services through apprenticeship and internship programs.

We must also recognize that school-based education is only one piece of a larger learning system – especially now that technology is enabling anytime, anywhere learning customized to an individual's style and need. A critical piece of formal education's job is to help students learn how to learn – from developing an understanding of how they personally learn best, to knowing where to start in seeking new knowledge and skills throughout their lifetimes.

Employers have a critical role to play in helping people build new skills on the job or through just-in-time access to training. Ongoing workplace learning is becoming essential as rapid developments in technology continually change how – and where – work is done. Canada lags other OECD countries when it comes to providing job-related training – with only 38% of the adult workforce participating in such training, compared to 53% in Sweden and 48% in Norway.[27]

Many of Alberta's employers are small businesses that cannot afford in-house training expertise. They do not have enough staff to allow employees time off for formal courses. Those seeking global business opportunities know that this requires staff with at least a basic understanding of other cultures and practices – but they lack the connections required to offer staff international experiences. We suggest employers and sectors pool resources in a collective effort to develop the workforce on which their future depends.

Make it easier to move in and out of formal learning systems, pursue multiple paths, and learn through life

Promote the importance of continuing to learn through life, and remove barriers – practical, financial, attitudinal – to people pursuing formal and informal learning at any age and stage. This includes making it as easy as possible to move between the university and college systems (within and outside of the province and country), and to re-enter the system as an adult. Take advantage of the Supernet to offer e-learning opportunities to all Albertans.

Recognize that it is in the best long-term interests of business to get more engaged with educational institutions, and expand opportunities to combine formal education with work experience and on-the-job training.

Expand collaborative efforts among industry and other partners to collectively develop the Alberta workforce – providing training, mentoring, on-the-job development and global experiences.

27 OECD, 2002

Seeking talent around the globe

Like other countries with aging populations, Alberta in 2040 will be competing to attract the brightest and the best talent to the province's workforce to fill critical gaps. As early as 2030, demographers predict that domestic workforce growth in Alberta and Canada will have stalled, although higher birth rates in our Aboriginal population could indicate potential for some domestic population growth.

Encouraging seniors who wish to stay in the workforce longer to do so could mitigate (but not solve) the problem. Employers could abolish their mandatory retirement age and other policies that discriminate on the basis of age.

Employers in this province are already concerned about shortages of people to fill jobs at all skill levels, well aware that energy booms create huge demands for workers in service sectors as well as in construction and labour-intensive oil sands production. The very specialized skills and knowledge essential to success in broadening the economic base are in short supply in the province now because there have not historically been good opportunities in these areas. One key requirement is more people experienced in founding and growing technology-based businesses.

While productivity improvements and the application of innovative business models may slow growth in the labour supply gap or change the mix of skills required over the next three decades, we still expect to see an increasing need to attract immigrants to the province to fill key gaps at all skill levels.

The number of immigrants to Alberta from outside Canada has risen steadily, and now sits at about 30,000 per year. Alberta is richer as a result. Newcomers bring the diverse perspectives, knowledge and experience that keep companies innovating and maintaining their competitive edge. They also bring contacts and connections that are increasingly important as trade and supply chains globalize. Some bring wealth to invest. Communities can be more interesting and vibrant places when different cultural traditions co-exist and mix.

> In Canada, 14 percent of businesses at the end of 2009 were reporting 'shortage of un/semi-skilled labor' as their main business constraint (skilled labor shortages affected 29 percent of businesses), despite rising unemployment rates...Not only will many countries be forced to admit large numbers of low-skilled and semi-skilled immigrants, but they will soon have to compete for them.
>
> Doug Saunders, *Arrival City*[29]

29 Saunders, 2010.

Looking ahead, Alberta will be challenged to meet growing labour needs under the immigration system as it stands today. The federal government currently caps at 5,000 the number of people Alberta can bring to the province through the provincial immigrant nominee program. Most permanent immigrants come in through the federal immigration program, which has caps on skill-based categories. This constrains Alberta's ability to get the workers we need to sustain and grow our economy. While the federal temporary foreign worker program is a useful mechanism for filling short-term needs, it is not wise to hang the success of a long-term economic strategy on workers who must leave the country after four years.

TAKING THE INITIATIVE TO LEND A HELPING HAND

The Alberta economy is failing to benefit from the skills and knowledge of many newcomers because their home country education, professional credentials or work experience are not recognized here. Employed in low-paying jobs if they're working at all, and without a credit history in Canada or collateral to secure a bank loan, many struggle to cover the costs of taking exams or qualification assessments, upgrading skills and fluency in English, paying professional association fees.

The Immigrant Access Fund provides micro loans of up to $10,000 for this purpose. It's backed by a $1 million line of credit secured through personal guarantees of an informal consortium of business people. To date, about 98% of the close to 550 loans provided have been paid back with interest. We need more of these kinds of initiatives to help newcomers contribute to their full potential, for the benefit of all Albertans.

WHERE TO START

Attracting talent here is only part of the equation. Making people welcome and productive is the next challenge. Mechanisms to upgrade language proficiency, appropriately recognize credentials, and help people who have not yet built local networks of friends and colleagues find good jobs are key. Initiatives such as the Pan-Canadian Foreign Credential Recognition Framework and Alberta's leadership in developing and implementing a provincial foreign qualifications recognition program are examples of what must be done to help people settle into productive work quickly. Also essential is support (practical and financial) for families to find housing, upgrade skills, and adjust to new communities with foreign customs and social norms.

Progress has been made on all these fronts over the past several years. There is more to be done. If Alberta can get this right and build a reputation as a place that makes adjusting to a new life easy and rewarding, we will have an edge in the global competition for talent.

Work with the federal government to change the immigration system – to help address critical shortages of workers at all skill levels

It is in the interests of all Canadians that the Alberta economy remains strong. To realize the full potential of the oil sands and broaden the economic base, the province will need people from outside the country as well as migrants from other parts of Canada.

The provincial government and industry must collaborate in demonstrating to the federal government the critical need to at least double the caps on the provincial immigrant nominee program. Advocate for immediate changes that allow temporary foreign workers with solid records to apply for permanent resident status while they are still in the country. Continue to work with the federal government to institute longer-term changes to better align the national immigration program with strategies for economic growth, making it more responsive to changing economic conditions and industry's workforce needs.

Determine what is getting in the way of swift assessment of foreign trades and professional credentials related to these scarce skills, and remove barriers to full recognition of qualifications that meet Alberta standards. Pre-certify credentials from selected offshore institutions, and create a mechanism that allows all immigrants to determine their credential status before moving here. Expand initiatives such as the Immigrant Access Fund to help immigrants achieve credential recognition.

WHERE TO START

Albertans abroad

A 2008 survey indicates that Alberta's youth are becoming more mobile: 23% of young adults said they expect to move out of the province over the next five years, up from 13% in 2006.[29] That might have been a short-term reaction to perceived loss of economic opportunity in the province at that time and a cause for concern. An extended net migration of people out of the province would clearly be a problem.

Our view, however, is that a more mobile population is generally a good thing for Alberta. The Commonwealth benefited for years from its web of successful people around the globe who had fond memories of their English education and maintained close ties. This kind of thinking is second nature in some cultures. Networks of Chinese and Indian nationals who have migrated around the world, for example, are a vital force in global business.

Many young Albertans who spend time away will return to the province to raise families, bringing with them a broader view of the world and an expanded network. Others will stay abroad but also stay connected with the province of their birth, connecting Albertans globally and opening up opportunities. We need to encourage and leverage this mobility, rather than worrying about keeping people here.

> Canadians rightly understand "brain drain" as bad and "brain gain" as good. But global mobility has ushered in an era of "brain chain," in which Canada needs to treat its up to 2.7 million expatriate citizens as national assets.
>
> Canadian International Council[30]

Engage Albertans living abroad – the diaspora – in connecting Alberta globally

Start by building a LinkedIn or Facebook-style web page seeking Albertans living abroad (where they are, what they do, their interests) and making it available to Albertans seeking global connections.

Create a mechanism for making the perspectives of Albertans living elsewhere available to provincial decision-makers on a formal basis – through an officer appointed to the legislature, for example, or an advisory council to government.

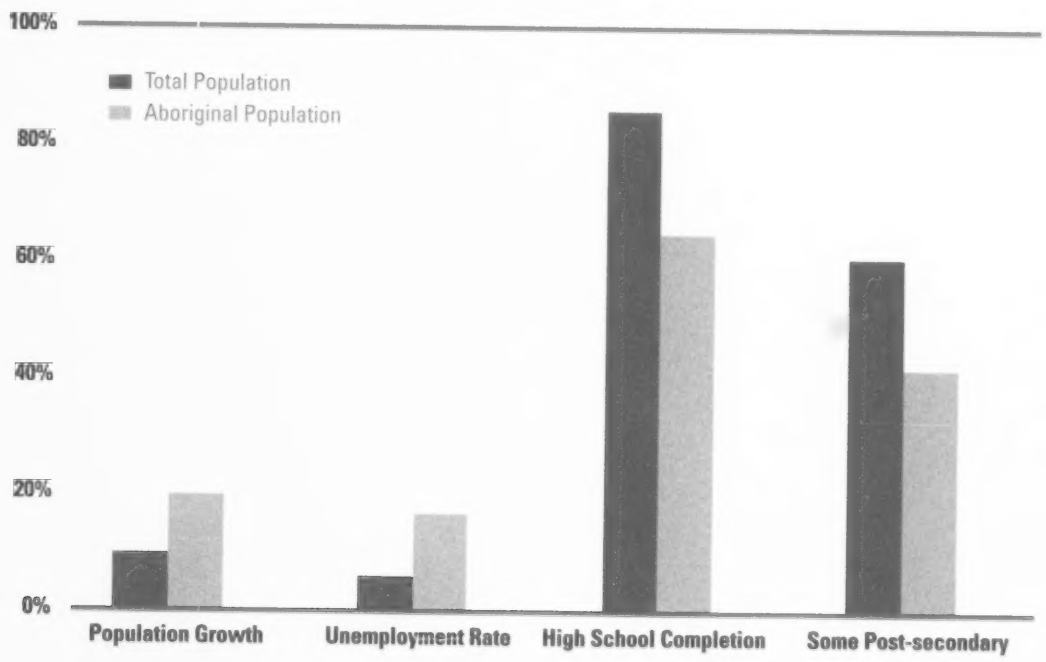
29 Berdahl, 2008, p. 6
30 CIC, 2010, p. 35

A focus on young Aboriginal Albertans

Alberta's Aboriginal population is the youngest and fastest-growing segment of Alberta's society. Forty-two percent of the 188,000 Aboriginal Albertans are under nineteen years of age. These young people have the potential to make a tremendous contribution to Alberta's economy and to society, given opportunity and a good foundational education. Too few are getting either, and too many are trapped in a cycle of poverty and ill health.

The reasons are complex and multi-faceted, reflecting historical, social and cultural factors. Aboriginal people are over-represented in incidence of chronic disease (such as diabetes), in teen parenting and in FASD. FASD burdens parents and society with children who are deprived at birth from any chance to lead full and productive lives. As a result, Aboriginal children are disproportionately at risk of not receiving the all-important "best early start." The life expectancy of the Aboriginal population is on average five to ten years lower than that of other Albertans.

SEEKING PARITY FOR ABORIGINAL ALBERTANS



Data source: Statistics Canada, 2006.

On-reserve, schools struggle to provide quality education, resulting in lower levels of attainment. If students transfer to urban schools, scholastic and cultural differences make the transition difficult, even if the students are still living at home on-reserve or in Métis settlements. It can be even more difficult if they are studying far from their families.

There are too few role models and mentors to provide Aboriginal youth with encouragement and guidance. With high rates of unemployment endemic in the Aboriginal population, many young people do not see an obvious path from school to economic prosperity and quality of life, and are not motivated to keep going.

One of the challenges of tackling this issue of disparity in educational achievement between Aboriginal and non-Aboriginal young people is that multiple levels of government all have varying degrees of accountability. Constitutionally, responsibility for on-reserve Aboriginal education lies with the federal government. Many on-reserve schools are governed by local Aboriginal leadership. Students who live off-reserve go to schools in the provincial system governed by school boards.

The Council urges all levels of government to work closely together for the benefit of the children, setting aside jurisdictional concerns or conflicting views. We are encouraged that in February 2010, the Assembly of Treaty Chiefs in Alberta and the governments of Canada and Alberta signed an historic Memorandum of Understanding (MOU) for First Nations Education in Alberta, which sets out a vision and long-term strategic plan to improve learning outcomes for Aboriginal students. The MOU features the creation of the Alberta First Nations Education Circle to oversee implementation.

> Investing in disadvantaged young people is one of the rare public policies with no equity-efficiency tradeoff. Aboriginal Canadians are without doubt one of the groups where the potential benefits of increasing educational attainment clearly outweigh the costs.
>
> Centre for the Study of Living Standards[31]

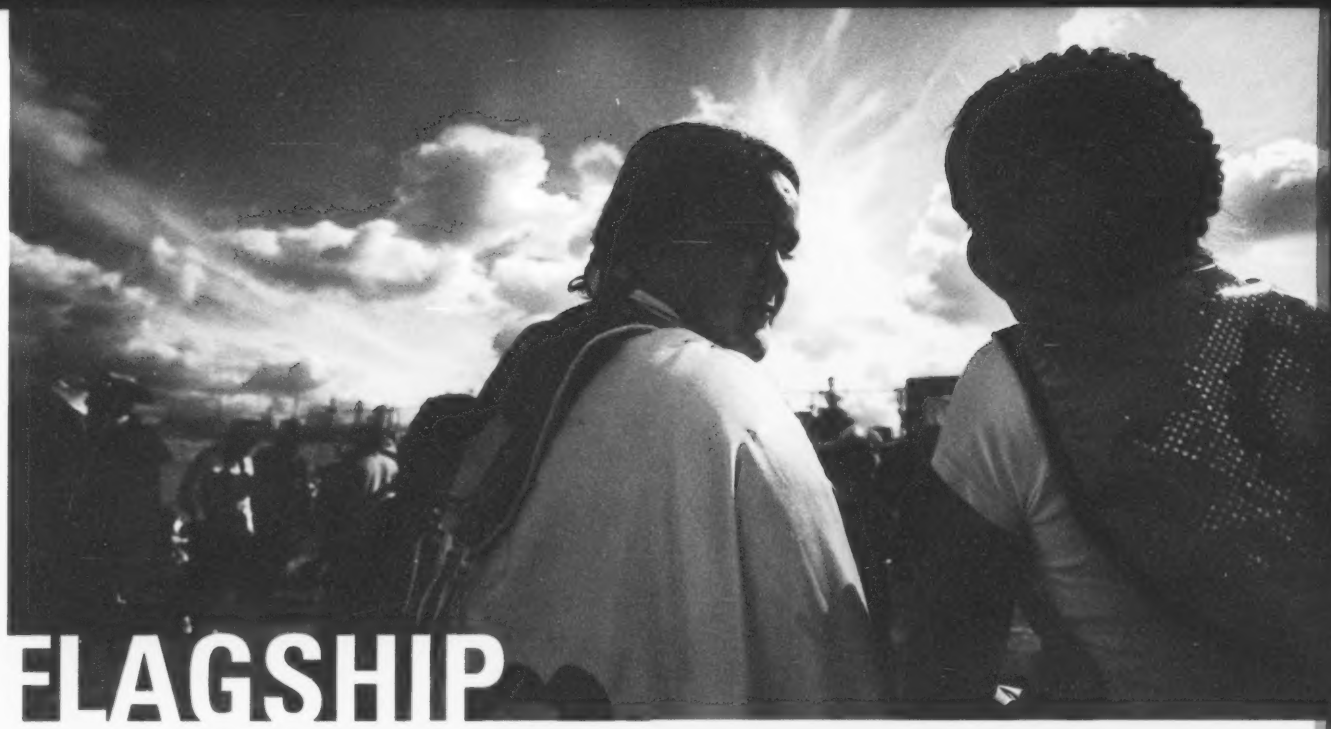
31 Sharpe et al., 2009, pp. 70-71

A key feature of the plan is establishment of an Indigenous Knowledge and Wisdom Centre to address the quality challenges of on-reserve schools. This Centre is focused on providing a learning experience that respects different learning styles, cultural values and promising practices. It is focused on improving Aboriginal content in curricula and providing an organizational infrastructure for on-reserve school administration. It will provide mentoring and support for Aboriginal people to enter the labour market. It also provides opportunities for all Albertan students to learn about Aboriginal culture and history.

The Centre for the Study of Living Standards estimates that if educational and labour market outcomes of Aboriginal Canadians were to reach non-Aboriginal 2001 levels by 2026, annual tax revenues would be $3.5 billion higher, and the cumulative tax gain over twenty-five years could be $39 billion. If key social well-being gaps are also eliminated, government expenditures would be $14.2 billion lower, for a cumulative 25-year savings of $77 billion.[32]

Educational equity for Aboriginal people is critical to our collective future as a prosperous and harmonious province.

32 Sharpe et al., 2009, p. v.



FLAGSHIP

> PARITY IN EDUCATIONAL OUTCOMES FOR YOUNG ABORIGINAL ALBERTANS

THE RISK: That the gap between Aboriginal and non-Aboriginal Albertans in terms of quality of life and attainment indicators continues to widen – resulting in frustration for thousands of Aboriginal families, social cost and lost economic growth potential for Alberta as a whole

THE OPPORTUNITY: Accelerate action on ensuring the growing population of Aboriginal young people can benefit from the opportunities this province offers, and contribute to the province as skilled and productive workers, engaged citizens and future leaders

THE IDEA: Recognize that the current system is failing many Aboriginal youth and that this is a problem no Albertan can ignore. Make achieving parity in educational outcomes for young Aboriginal Albertans a provincial priority – ensuring they benefit from the best possible start to life, achieve educational outcomes that equal those of the non-Aboriginal population, and have access to mentors and leadership development

HOW DO WE SEE IT WORKING?

The challenge is complex and many have a role to play in moving this agenda forward.

The voice and engagement of Aboriginal communities are essential. Prescriptions or plans made unilaterally by governments and/or service organizations will not succeed. That said, we cannot put the entire burden of addressing this critical and difficult issue on Aboriginal leaders and communities. It must be a collective responsibility of all Albertans.

We believe everyone living in Alberta deserves equal opportunity to develop the foundational skills and knowledge necessary to thrive and contribute to society – whether they live in cities, on First Nations reserves or in Métis settlements. Where this is clearly not happening, the provincial government must initiate action. It must work with Aboriginal leaders and families, businesses, municipalities and social service agencies to identify root causes, remove barriers and provide supports.

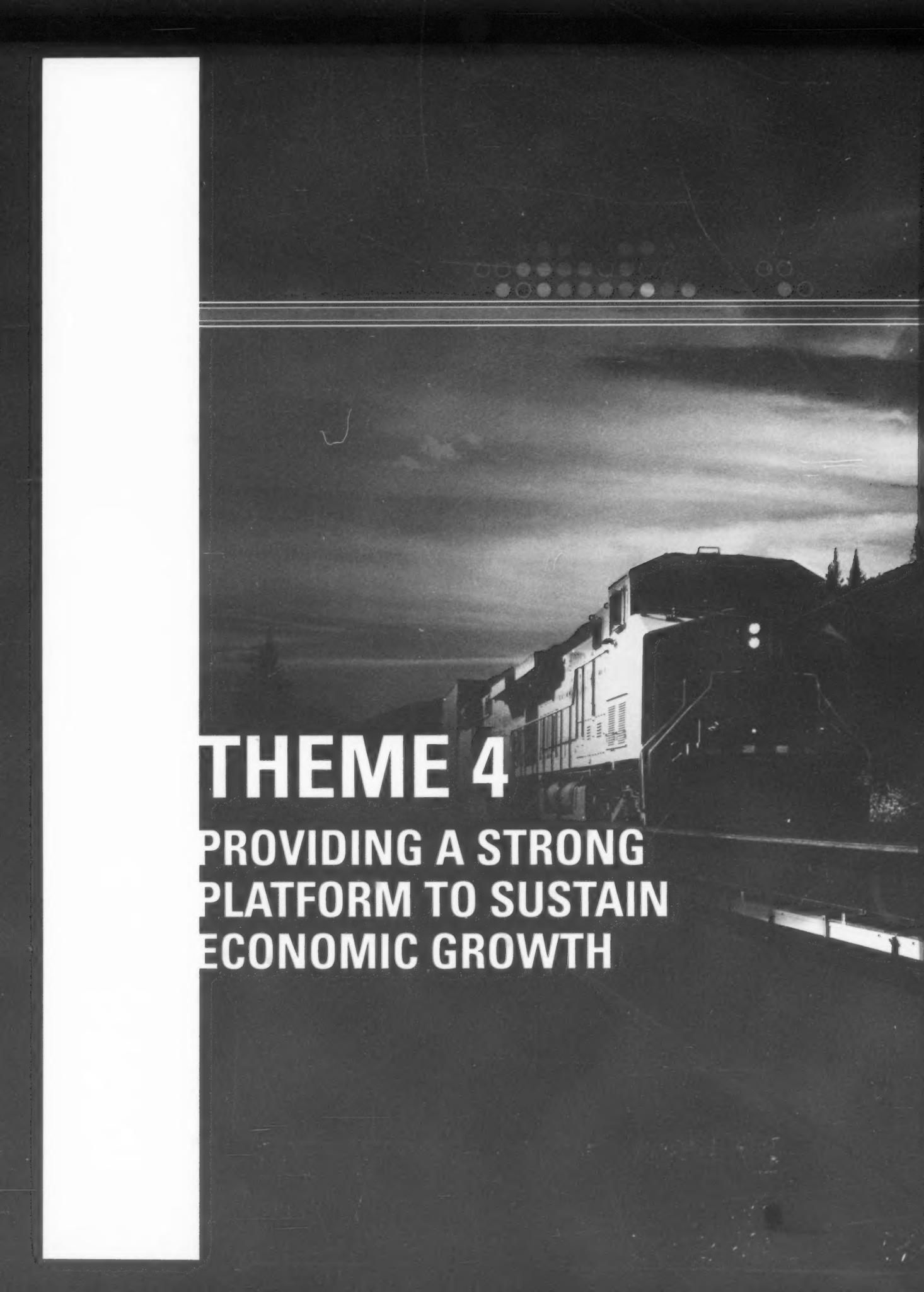
The key indicator of success is that by 2040 – ideally long before – Aboriginal Albertans will have achieved educational parity with non-Aboriginal Albertans, as defined by scores on standardized tests as well as high school completion. We focus on educational parity as a measurable outcome, recognizing that many factors outside the school system influence its achievement.

Interventions in the "best early start" with which we began this theme will be critical. The actions previously outlined to promote health and wellness, reverse the trend toward childhood obesity, and provide opportunities to combine formal education with out-of-school learning and work in a more flexible way (including using technology for distance learning) will also contribute to success in meeting this goal.

But much more urgent action will be required on many fronts to achieve educational parity. The Council calls on:

- **All parties to the MOU (Assembly of Treaty Chiefs of Alberta, governments of Alberta and Canada)** to make it a priority to move forward quickly with implementing the plans the MOU outlines – especially those intended to address the quality challenges of on-reserve schools. We are well aware that many well-intentioned strategies and MOUs do not result in action or change. This one must drive real change
- **All parties involved in the First Nations, Métis and Inuit Partnership Council (FNMI – which brings together the government of Alberta, the Alberta Treaty Grand Chiefs, Métis Presidents and FNMI community members)** to move forward on the priorities they have identified, including ensuring that FNMI children are ready and able to learn, that the education system engages parents and families to support children, and that teacher training is improved
- **Aboriginal, business, government and community leaders** to collaborate in nurturing the next generation of community, business and political leaders within the Aboriginal population. Beyond the formal curriculum in schools and existing methods of developing leaders, we see a need for greater focus on supporting the emerging young leaders who will ensure prosperity and vitality for their communities and Alberta as a whole. Create a new, culturally appropriate leadership development program that could include training, experiential learning, mentoring, access to role models, scholarships and recognition awards
- **Families and community members**, especially women as the prime nurturers of the young, to continue to provide support and encouragement to young Aboriginal Albertans in their lives. It will be these key influencers who lead children to have confidence in themselves and believe that education will help them realize their potential
- **Leaders of reform efforts currently underway in the Northland School Division** to capture and share results for application across the system. This is an excellent opportunity for learning about how to improve educational outcomes for Aboriginal students throughout the province
- **The many service providers** dedicated to Aboriginal young people living and studying in urban and rural centers to collaborate in creating integrated local support systems. Much good work is being done to ensure youth have access to the support they need to achieve educational success – be it housing, language or cultural adaptation skills, tutoring, coaching and mentoring. We believe this work will have much greater impact when it is better coordinated, with duplication and unnecessary competition eliminated
- **The business community** to establish or expand on-the-job training and educational opportunities for current employees and work experience for students. We ask established industries to support local Aboriginal businesses by entering into supply contracts and wealth-creating partnerships. We ask business leaders to step up to mentoring individuals pursuing a business career and providing management expertise to startup companies seeking assistance

Because we see this as a strategic economic priority for Alberta, we believe that elements of this work could be eligible for funding under the Shaping the Future Fund. This investment in creating a better quality of life for Aboriginal Albertans will greatly benefit all Albertans and play an important role in securing Alberta's future prosperity.



THEME 4

PROVIDING A STRONG PLATFORM TO SUSTAIN ECONOMIC GROWTH

PROVIDING A STRONG PLATFORM TO SUSTAIN ECONOMIC GROWTH

We need wise management of our water and land, a reliable source of competitively priced electricity, transportation and communication systems to get products to market and support global interaction

While the topics addressed under this theme are diverse, they have two things in common: all are essential underpinnings to economic activity in Alberta, and the Council believes there are important issues to be addressed in relation to each. The electricity system faces challenges related to transmission and greenhouse gas emissions. We see a need for greater focus on land stewardship in the context of competing demands. Success in broadening Alberta's economic base will depend on more robust transportation and communication capacity. The fact that development has outstripped our systems of understanding and managing water poses a threat to Alberta's prosperity.

We must:

- Begin planning now for potential government engagement to ensure a reliable, cost-effective supply of low-carbon electricity
- Continue to build and review comprehensive regional land use plans that balance human and ecosystem needs
- Create a long-term transportation plan that takes a strategic view of the services required to support a broadened economic base
- Complete and leverage the Supernet

Because Alberta's economy is so highly dependent on water – for agriculture and energy production, as well as other industrial and residential use – our flagship initiative is the creation of an Alberta Water Authority to innovate in water stewardship and ensure Albertans realize the full benefit of our precious water assets.

Electricity

Industrial users account for 80% of electricity use in Alberta. Electricity is an essential input to oil sands extraction. Greenhouse gas emissions associated with electric power generation represent 44% of Alberta's total emissions and are a substantial contributor to the environmental impact of the heavy oil industry.[33]

These are three key reasons why ensuring a stable, reliable, cost-competitive electricity supply and reducing the carbon emissions associated with its generation are fundamental to Alberta's future prosperity. They are challenges the government of Alberta needs to address.

In the late 1990s, Alberta restructured the electricity market, opening it to competitive forces. While government sets power-related policy and regulation, generation and transmission are both privately owned, and markets drive the development of new capacity and fuel sources. For the most part, the system has worked well, and Alberta has some of the lowest-priced thermal generation in North America. Suppliers have managed to bring new capacity on-line as it is required, on a just-in-time basis so as not to risk over-supply and depressed prices. They are exploring the potential of new sources of low-carbon power, such as hydroelectric power in northern Alberta and wind in the south.

We see two challenges ahead that create a risk the market will not be able to respond quickly enough at a competitive price. One is that transmission infrastructure is inadequate. The Conference Board of Canada has noted that there has been no significant investment in transmission lines in twenty years in Alberta or anywhere else in Canada.[34]

The Alberta transmission system currently has only one inter-provincial connection, with British Columbia. Alberta imports B.C.'s hydro-based power at peak times and sells surplus coal-based power at other times, but in dollar terms is a net importer. New interconnections through Saskatchewan to Manitoba could create greater reliability, enhanced generation opportunities in Alberta and a more competitive marketplace. For Alberta, this could mean access to lower-cost or lower-emission power as well as additional markets for Alberta power.

Alberta has developed a plan to build new transmission lines in stages across the province, to better connect sources of electricity generation to areas of growth in consumption. Landowners and Aboriginal groups have raised concerns about line siting and placement of infrastructure. The conflict between local and collective need is escalating.

33 Alberta Energy, 2011
34 Baker et al., 2011

Keeping the cost competitive and minimizing negative impact on stakeholders are both important, but a way must be found to alleviate concerns and move forward. Augmenting the transmission system is essential. Businesses are at risk of interruption in service. Private-sector players have no incentive to increase generation capacity if they cannot get supply to consumers. We need a modern power system able to connect alternative and renewable sources.

The second challenge is the need to reduce greenhouse gas emissions associated with electricity generation. Almost 60% of Alberta's electrical power is generated from coal; 33% from natural gas.[35] The 2010 federal Carbon Framework puts constraints on new power generation from coal and on the life span of existing coal-fired facilities.

The logical short-term move from a market perspective is to natural gas as the fuel of choice. It is much cleaner than coal. Its price is currently low. From a long-term public interest perspective, should the price of natural gas rise significantly, the competitiveness of Alberta's industry could be at risk if we are entirely reliant on electricity from natural gas. Diversifying the mix of fuels used for electricity generation would make the province less vulnerable. And, as noted in our Theme 1

TACKLING THE GREENHOUSE GAS CHALLENGE

Alberta has set its own CO_2 reduction targets – 200 megatonnes by 2050 – and passed legislation in 2007 requiring large emitters to reduce intensity by 12%. Those who fail to meet this requirement have choices: change processes to reduce emissions, pay for a "carbon offset" created by another Alberta-based company that has reduced emissions even more than the target, or pay $15/tonne for each tonne of CO_2 emitted over the targets to the Climate Change and Emissions Management Fund. The total value of the fund now stands at $122.4 million, money being used to support technology innovation to reduce greenhouse gas emissions in the province.

35 Alberta Energy, 2011

WHERE TO START

discussion of an integrated energy strategy, there may be higher value uses for natural gas than power generation.

Changing generation sources is a high-cost and long-term proposition, requiring large investment over a long period of time – up to fifteen years before receiving a return on investment in a large-scale hydro or nuclear project, for example. In this context, it will be important for government to continue to support the development of low-carbon electricity generation capacity. The province cannot rely on market forces alone to produce enough low-emission, reliable, competitive electricity to support its long-term economic strategy.

Begin planning now for potential government engagement to ensure a reliable, cost-effective supply of low-carbon electricity

Continue to invest in clean coal technology (including carbon capture and storage) to bring coal back into the thermal fuel mix and derive value from this vast resource. The proposed Global Centre for Energy will take the lead here.

Plan now to engage in public-private partnerships to diversify the mix and support new electricity generation. Potential government roles include early stage investment in generation projects, risk-sharing arrangements, or power take-off agreements which assure generators of a customer for new power over a period of time. The Alberta Balancing Pool would be a possible source of public funding for such purposes, if needed. Created when the province moved to a competitive electricity market, the pool was initially funded by sale of Power Purchase Arrangements as part of the transition. Among other functions, it is intended to cover potential environmental liabilities and other public risks, and pay for the eventual decommissioning of power plants.

Land

With an economy based on natural resources, the people of Alberta have a powerful connection to the province's 100 million acres of land. Alberta's natural beauty has also served to attract residents and visitors who enjoy outdoor activity. Albertans have come to expect ease of access to publicly owned land and rights with respect to privately owned land. At times, that expectation may come into conflict with responsible land stewardship – with protecting the value of land for future generations.

A number of factors point toward a need for greater focus on land stewardship and broader public dialogue on land use. About 60% of Alberta's land is forested, mostly owned by the crown and managed by large forest products companies. Of the remaining 40% arable land, half is suitable for forage production only.[36] Rapid urban development is converting some of the most productive agricultural land to residential and industrial use – at a time of rising global concern over the capability of the planet to sustain and feed a growing population.

> Our vision of 21st century stewardship in Alberta is a land-use management system with clearly defined ecological targets, and an underlying regulatory framework that provides incentives for achieving targets through flexibility and innovation. Alberta can achieve this by shifting towards the use of markets of ecosystems services. This shift will allow the current forestry sector, for example, to evolve into an 'ecosystem service sector' and generate revenue from new market-based opportunities, such as habitat reconstruction, bio energy production and carbon management.
>
> Council-commissioned report by Vic Adamowicz, Jay Anderson & Marty Luckert[37]

36 GoA, 2008.
37 Adamowicz et al., 2010.

WHERE TO START

Expanding energy development is setting off alarm bells related to fragmentation of wildlife corridors, disruption of natural habitats, the loss of pristine landscapes and impact on the traditional livelihood of Aboriginal communities. There is growing understanding of the value of wetlands to biologically filter pollutants, and of crops and forests as carbon sinks.

We see opportunities to speed up reclamation of land disturbed by oil sands activity, and to more aggressively protect agricultural land and conservation areas. We also see a need to establish clear stewardship expectations for all private and public lands in the province.

Continue to build and review comprehensive regional land use plans that balance human and ecosystem needs

Alberta's government has taken transformative steps in passing the Land Stewardship Act and instituting an integrated planning approach through the Land Use Framework. The approach cuts across disciplines and multiple government departments whose mandates touch on water, land, air, energy, forestry and agriculture.

Accelerate the work underway to develop regional land use plans designed to manage the cumulative effects of land use, based on state-of-the-art ecological and economic modeling. Strengthen the consultation process with the people who live and work on the land. Design an effective organization to oversee delivery of the plans and objectives, with sufficient sustained resourcing.

Transportation

Decisions about transportation shape patterns of commerce and the future of communities. Transportation routes also influence how people think about their place in the world, as the leaders of an emerging Confederation understood when they undertook the mammoth task of building a coast-to-coast railway.

Our twin goals of realizing the full potential of our energy resources and broadening our economic base will require reliable, cost-competitive transportation services to take more products into more markets, and to facilitate movement of people within and outside Alberta's borders.

Currently, the vast majority of Alberta's exports flow through pipelines, road and rail systems to the U.S. As part of our focus on building a North American platform, it will be important to reach agreement on a Canada-U.S. perimeter security plan with a view to improving border efficiency for all modes of transport. To fully leverage the Canamex highway system that is intended to support expanded north-south trade, the three countries it links will need to reconcile differences in trucking standards that currently impede cross-border traffic.

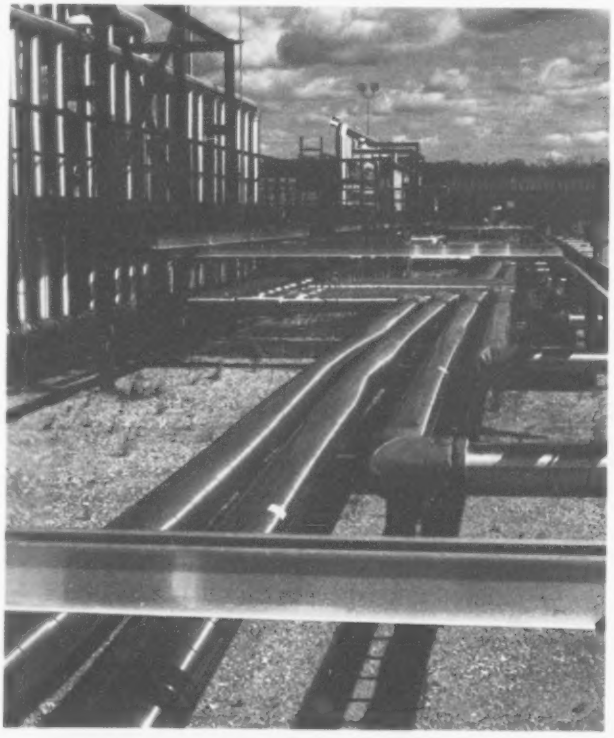
Tapping the growing Asian market will require new transportation capacity (pipeline or rail) to Canada's west coast and more port facilities there. Broadening the economic base will require competitively priced and reliable freight services to international markets. For moving goods to offshore destinations, container rail services will be key.

In our ideal future, we see increased competition for freight and passenger business. In the same way that telecommunications and power transmission infrastructure has moved from monopoly control to a more competitive environment, rail companies should be developing systems for open access to rights of way. Open skies would also improve access via air to key markets, and help the tourism industry. For this to become reality, regulatory structures relating to both rail and air will need to become more focused on the overall economic and consumer interests of the community, and more open to competition.

High-speed rail, direct air services and excellent urban transit systems all contribute to attracting people and businesses. A high-speed rail system linking Edmonton and Calgary would serve as a practical backbone to create a thriving economic region. It would symbolize Albertans' collective understanding that this small population will be unable to compete successfully on the world stage in the absence of close collaboration between its largest urban centres. Many people now regularly fly or drive between the two cities. Given that the use of fuel for transportation has a larger impact on the environment than fuel production, switching to a fuel-efficient train service would send a strong signal of Alberta's commitment to environmental protection.

WHERE TO START

It is important that land use planning look far into the future, anticipating population increases and shifting economic activity. In a global economy, airports become very important. The land around airports becomes a strategic asset. The corridors through which more pipelines, rail lines, roads and communication lines will need to be built to connect businesses and markets must be reserved for future growth, rather than broken up and committed to non-strategic uses. Wherever possible, rights of way that are currently protected for one purpose should be opened up to multiple uses.



Create a long-term transportation plan that takes a strategic view of the services required to support a broadened economic base

Given the long lead times required to build transportation services, forward-looking planning and investment must begin immediately.

Make it a priority to build a high-speed rail line linking Edmonton and Calgary, forming a vital backbone to the province and a unifying symbol of intent.

Identify and protect land corridors for future expansion, especially lands around airports, to facilitate building of infrastructure that will be required in years to come.

WHERE TO START

Communication

Seizing the opportunities presented by the shifts underway in the world requires highly sophisticated communication capability. Albertans need to stay constantly in touch with global markets. We need to be able to participate in virtual research networks and electronically connected global supply chains. We want to stay in touch with the diaspora of Albertans working and studying abroad.

Access to high-speed internet allows people living in Canmore to work with companies in Silicon Valley. It allows people to choose a rural lifestyle and telecommute to an urban business, or start their own home-based business. It allows small local businesses to do direct marketing of products and services at minimal cost.

Alberta had the early vision to build the Supernet to connect its 400 cities, towns and villages. In some parts of the province, there are still "last mile" issues to be overcome – connecting individual businesses and homes into the internet. With this infrastructure in place, there are opportunities for Alberta's entrepreneurs to use it to provide services – in education and health, for example – in innovative ways, both for domestic benefit and global export.

Complete and leverage the Supernet

Ensure all communities can provide high-speed internet connections to every house and business.

Develop innovative applications that demonstrate the potential of the Supernet, by providing services and opportunities to Alberta's smaller communities.

Water

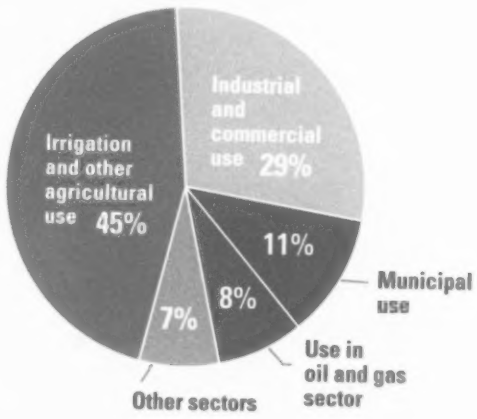
Canadians have tended to regard water as a birthright, abundantly available to all at no or low cost. Albertans pay for conveyance, but not for water used. Since water is widely regarded as free, there is little incentive for the general public to pay much attention to efficiency and management.

But it is dangerous to take water for granted. Development has outstripped our systems of understanding and managing it. An essential component of our future prosperity will be new investment in stewarding supplies.

Because Alberta depends on rivers rather than lakes for its water supply, managing water is a complex business. The quantity flowing through the river basins varies greatly throughout the year – high flow in spring and early summer due to rainfall, melting snow and glacial run-off; low flow in late summer, fall and winter. There are already indications that climate change is altering the patterns. What exactly this will mean over the long term is uncertain.

Further complicating the picture, the right to draw water from the rivers is governed by a system of water allocation that is more than a century old, and is based on the principle of "first-in-time, first-in-right" – essentially first-come, first-served. The oldest licenses are the most valuable, as during times of water shortages the right of these senior license holders to their full allocation trumps that of more junior license holders. The system is now out of sync with changing economic and demographic patterns, and lacks the flexibility to respond to changing demand.

WATER ALLOCATION IN ALBERTA



Data provided by Alberta Water Research Institute

The north is home to 87% of the average total flow in the province and only 11% of the population.[38] There, the primary use is in the energy and forestry industries. Use is strictly regulated, with 85% of the Athabasca River at low flow protected from industrial use.[39] A major challenge is getting credible, verifiable, consistently collected data to understand the real impact of energy production and make informed decisions on regulation and performance standards.

The greatest population density and greatest need is in the south, where the supply is smallest. The Bow and Oldman River basins and parts of the South Saskatchewan are closed to new licenses. Irrigation Districts hold senior and large licenses which they allocate to individual farming and ranching operations. In recent years, people in the agricultural south have been anxiously watching changes in timing and quantity of seasonal precipitation, as well as lower-than-expected supply from glacial melt.

Some licensees are holding water allocations that far exceed their current use, while in the same area planned development is constrained by lack of water access. We do not have a rigorous system in place to track how much water each licensee is actually using.

In the South Saskatchewan basin, trading or selling of allocations between entities that already hold licenses is permitted, giving them some flexibility to meet fluctuating demand. Some informal, short-term trading of allocations occurs based on a handshake with a neighbor and is never recorded. Senior license holders have more often than not been the instigators of water-sharing plans when there are

> No one has really got their minds focused on having a good, intelligent conversation around what we are going to do to accomplish three things: conserve water for the ecosystem, preserve water for recreational and human use, and at the same time facilitate the transfers from existing users to new users that need to have access to that water because we have a growing economy.
>
> The Honourable Rob Renner, Minister of Environment

38. AEDA, 2008, p. 33
39. Alberta Environment, 2007
40. Lisac, 2011

shortages. Such informal arrangements can work well in some contexts, but do not add up to a robust system for managing a valuable, essential and often scarce public resource.

Good information is a prerequisite for sound decisions. Alberta does not currently have sufficiently comprehensive water supply, consumption and quality monitoring systems to inform water planning. What information we do have is scattered and not readily accessible to the public. We are not looking closely enough at the cumulative effects of our water use on groundwater, wetlands and the entire ecosystem. Nor do we have flexible mechanisms that will support new areas of economic activity and incent investment in infrastructure (canals, reservoirs, etc.) that will capture and store water during periods of high flow for later use.

Responsibility for water management today is vested in the environment ministry. However, policies and practices affecting water supply and management are spread across multiple departments and agencies in three levels of government. Alberta's Water for Life strategy is a good first step toward focus. It sets out goals in relation to healthy aquatic ecosystems; safe, secure and reliable supply for consumer use and economic growth. One of its primary goals is to improve efficiency and productivity of water use in Alberta by 30% from 2005 levels by 2015.

Efforts to move forward with coordinated information management and planning have been constrained by this dispersion of accountability. We see an urgent need for greater focus on this critical resource, and new mechanisms to drive concerted action.

FLAGSHIP

> ALBERTA WATER AUTHORITY

THE RISK: Within our thirty-year horizon, Alberta's current water management structure will be unable to effectively manage our water resources to support a growing population and expanding economy

THE OPPORTUNITY: To innovate in water stewardship, support expansion of Alberta's food industry and earn a reputation for responsible use of water in energy production. To realize the full benefit of our precious water assets

THE IDEA: Create the Alberta Water Authority, an independent organization to ensure optimal water management across the province

HOW DO WE SEE IT WORKING?

The government, through the environment ministry, continues to be the owner and developer of objectives and policies pertaining to water.

The Alberta Water Authority reports to the environment minister, but has clear and independent governance, sanctioned by statute. It is funded through a regulated levy on water allocation. It provides input into policy development and serves as the single entity with oversight for water management. This includes:

> **Water Information**

The Alberta Water Authority will be charged with creating and maintaining a fully integrated and accessible water information system to support planning and decision-making. It will begin by aggregating information currently being collected independently by a variety of sources, identifying gaps and setting priorities for expanding data collection and analysis. It will be appropriately funded to address over time the full suite of water information technology and processes required to assess current conditions, project future scenarios and evaluate options: surface and groundwater mapping, metering of use and return of post-use treated water to the source, licenses and allocations, determination of how much water must be protected from allocation to preserve groundwater and wetlands.

> **Water Infrastructure**

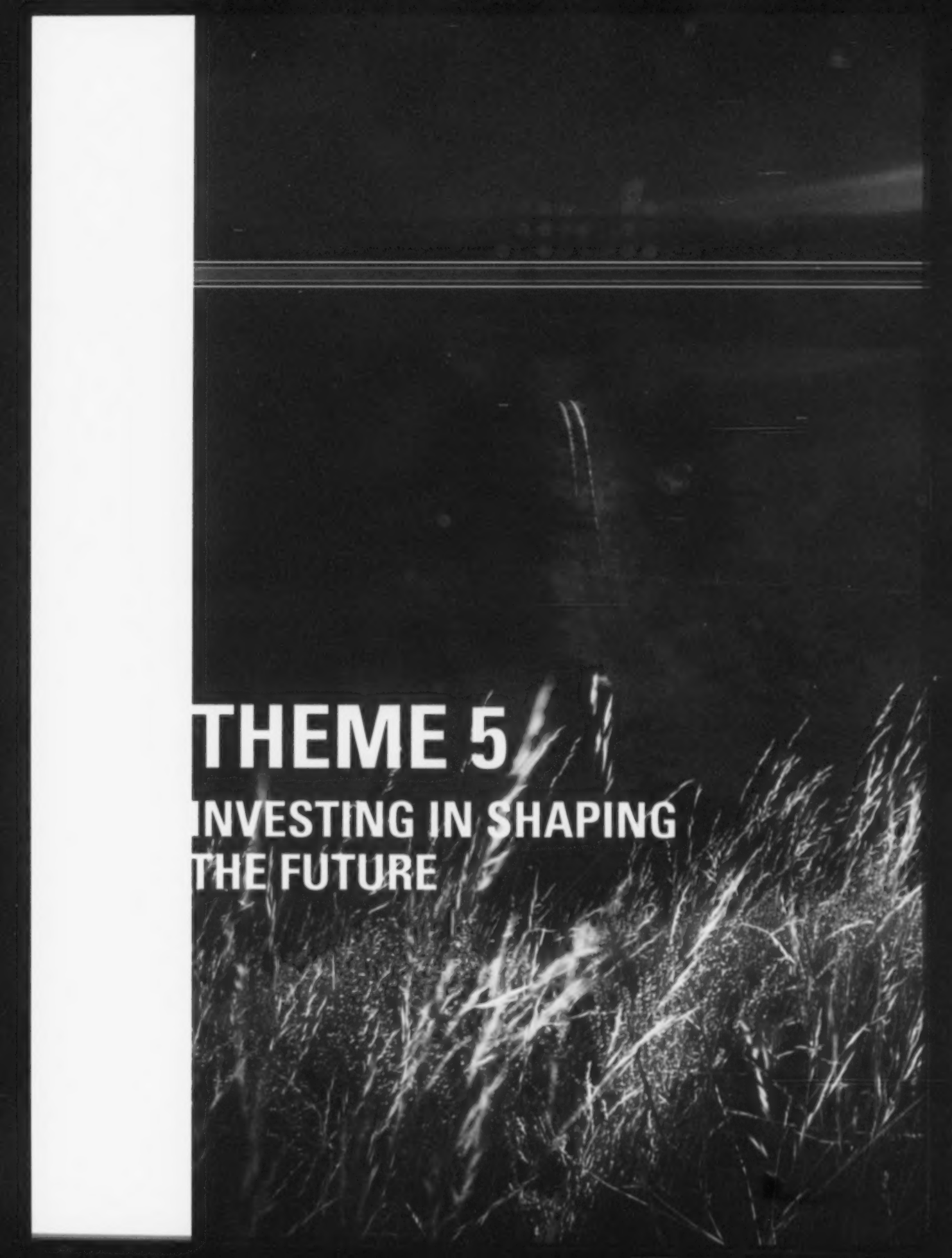
The Water Authority will develop a 25-year infrastructure plan to support effective water management to meet projected demand – including for example, on-stream (dams) and off-stream storage facilities (canals, fully depleted aquifers) to capture water in high-flow seasons to meet demand when flow is low. Building of such infrastructure would be a candidate for investment by the Shaping the Future Fund.

> **Water Allocation**

The Alberta Water Authority will oversee an Alberta water allocation exchange. The Authority will maintain information on use and return flow. It will track trades permissible under current policy. It will also advise on policy changes to give holders of water licenses more opportunity to sell, lease or trade some or all of their right to draw water. Such changes will allow licensees holding water allocations they are not currently using or no longer need to lease or sell this surplus to others within the watershed at a price set by market forces of supply-and-demand. Arrangements could range from short-term leases to cover unusual needs during a drought, to long-term leases, to a permanent transfer that would allow a new water user to buy or lease the senior license benefits conferred on the original owner. Trading will be governed by strict rules to ensure that environmental and residential requirements are always met first.

Attaching a value to water will provide all users the incentive to store, recycle and safeguard it. An Irrigation District, for example, could recoup its investment in water-saving practices by leasing the resulting surplus to a growing municipality.

The Authority will encourage the growth of activity that delivers the highest possible benefit to the province for the water used.



THEME 5

INVESTING IN SHAPING THE FUTURE

INVESTING IN SHAPING THE FUTURE

We need a more strategic and disciplined approach to managing our resource wealth and investing to shape the future – because it will take sustained commitment over the long term to secure prosperity for future generations of Albertans

Today, the province spends proceeds from the one-time sale of non-renewable energy assets (primarily royalties from bitumen, crude oil, coal, natural gas and byproducts) as if they were ordinary income (individual/corporate taxes and fees). We use this money primarily to fund our day-to-day operating and capital expenses, covering programs and services such as health, education and general government. If we continue on this path, someday we will have to explain to our children why we've spent their inheritance on today's needs.

If, on the other hand, we direct the proceeds from the sale of these assets toward realizing the full potential of our energy resources, broadening the economic base, preparing Albertans to prosper in a global economy and creating a platform for growth, that investment will pay off over the long term in jobs, profitable businesses and growing tax revenue for the benefit of all.

We must:

- Stop directing money received from the sale of non-renewable energy assets into the General Revenue Fund
- Finance current expenditures using current revenue. Determine the level of public services desired by Albertans and align revenue to pay for them
- Restore the stabilization fund to a level appropriate to withstand future cyclic drops in revenue

Our flagship initiative is a Shaping the Future Fund to ensure that wealth produced by converting non-renewable energy assets today is invested with intentionality to secure prosperity for future Albertans.

WHERE TO START

Using our natural resource wealth

Alberta has long maintained one of the most competitive tax structures in the country. The gap between tax revenue and expenditures on public services has been filled by money the provincial government receives from the sale of our non-renewable energy assets.

In the current fiscal year, wealth from the sale of non-renewable energy assets constitutes about 23% of the $35.6 billion provincial revenue.[41] Revenues from this source have ranged from 19% to 42% of total provincial government revenue since 2000, averaging 30% during this period.

We believe this practice is a risk to the province's future prosperity. Revenue derived from non-renewable resources is not a recurring source of income like a salary is for an individual or taxes and fees are for a government. It is, rather, a one-time conversion of a capital asset into capital funds – more like the sale of a piece of land or a building.

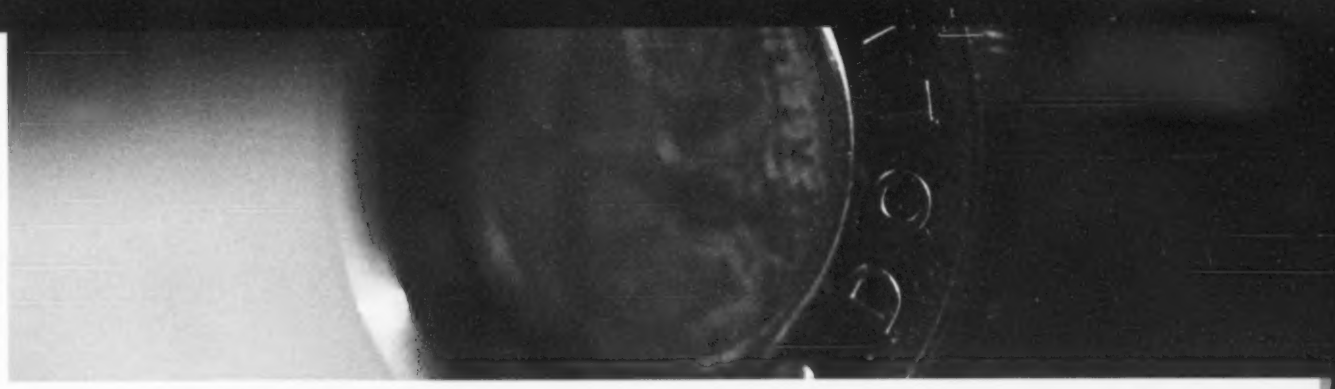
We are not advocating thinking about money from energy sales as a nest egg we put away in the bank or a long-term investment portfolio – thereby making it unavailable to the current generation of Albertans. Rather, we are suggesting using it differently. Throughout this report, we have outlined exciting opportunities for investment in shaping Alberta's future. All of the flagships require substantial funding. All have the potential to generate even more substantial returns to the province in the form of well-paying jobs, profitable companies and increased tax revenue to fund public services. We believe Alberta's natural capital assets should be invested in building a prosperous future.

Stop directing money received from the sale of non-renewable energy assets into the General Revenue Fund (GRF)

Recognize that money received from the one-time sale of a natural asset is different from ongoing revenue from taxes and fees, and treat it as a capital asset to invest in shaping Alberta's future.

Since these revenues have constituted about 30% of the GRF over the past decade, this change will require transition time (five to ten years).

41 GoA, 2011a



Paying our way

Other jurisdictions fund public programs and services from taxes and fees paid by individuals and corporations. Since 2000, Albertans have paid on average only 70% of the cost of such services. Funds from the sale of non-renewable energy assets have paid for the remainder. This has allowed us to keep taxes low while delivering an unusually high level of public services relative to what we pay. We have come to count on this low-tax "Alberta advantage," seeing it as a way to attract people and businesses to the province. We feel entitled to it.

The Council's view is that this comes at too high a cost, because it draws on our capital and reduces our ability to invest wisely in the future. If we knew a farmer who regularly sold his or her fields – an acre at a time – to cover daily grocery bills, we'd worry about that family's financial prospects and the children's future. That is what we are doing with much of the Alberta government's resource revenue today. While we have noted throughout that we will not physically run out of energy resources for centuries, we must plan for a time when ultimately we no longer can sell these resources profitably. If we are wise, when that time comes, we will have closed the gap by whatever combination Albertans choose of more limited current expenditure and greater revenues from other sources.

The true Alberta advantage is not the ability to create a low-tax environment by underwriting a significant proportion of government services with funds received from the sale of energy assets. Rather, the advantage lies in our opportunity to use the proceeds from our natural resource wealth – in combination with our highly educated and skilled people – to intentionally invest in shaping an economy that is much less dependent on natural resources. The practice of spending this converted capital as if it were ordinary income deprives Albertans of the opportunity to intentionally shape our future.

If funds from the sale of non-renewable energy assets are removed from the GRF, this will force all of us to face up to the reality that every public service comes at a cost and that current expenditures should be financed by current revenue. If we decide as a society that low taxes are paramount, we must also decide what services we want to reduce, give up or learn how to deliver more cost-effectively. If we choose to put our priority on high levels of service, we must be prepared to increase revenues through one or more of the various tax options or through user fees.

Between 1999-2000 and 2010-11, total government program spending increased by 36.4%, from $7,505 per capita to $10,240 on a constant dollar basis. During this period, ordinary revenue (taxes and fees) declined by $150 on a constant dollar per capita basis. This increase in program spending has been financed entirely by proceeds of the sale of our non-renewable energy assets.

Nowhere is the need to bring expenditures and revenue into alignment more obvious and critical than in health care. Alberta will spend $4,295 per person on health and wellness in the 2010-11 fiscal year, compared to $2,490 per person in 1999-2000 – a 72% increase. The Canadian average is $3,663 per person – 17% less.[42] Targetting health care spending to the average Canadian level would reduce Alberta's spending by $2.4 billion annually.

42 CIHI, 2010, p. 33.

WHERE TO START

The current growth in government expenditures on health care is not sustainable without tax increases or major reductions in all other government programs. If this issue is left unresolved, rising health care costs clearly have the potential to undermine Alberta's efforts to invest adequately in our future. At the same time, no government wants to deny people access to interventions that would restore them to health and productivity. It is time for Albertans to face the facts on rising health care spending.

Over time, lifestyle changes and investments in preventive measures can reduce the direct and indirect costs (lost productivity, lower quality of life) associated with management of chronic diseases like diabetes. But with the population aging – and more expensive medical technology and treatments available to improve health outcomes and quality of life – we have every reason to believe spending on health care will continue to rise in the foreseeable future.

As citizens, we must align our expectations with what we are willing to pay for all the public services we count on, even as we put more pressure on government to discipline expenditures and become more efficient.

> ...if Alberta does not develop a fiscal system that is strong and sustainable in the longer run, other objectives will not be realized. Fiscal realities, denied in the past, must be accepted. Strong political leadership is required. I remain hopeful.
>
> Submission to Council from Roger Smith, Professor Emeritus, University of Alberta

Finance current expenditures using current revenue. Determine the level of public services desired by Albertans and align revenue to pay for them

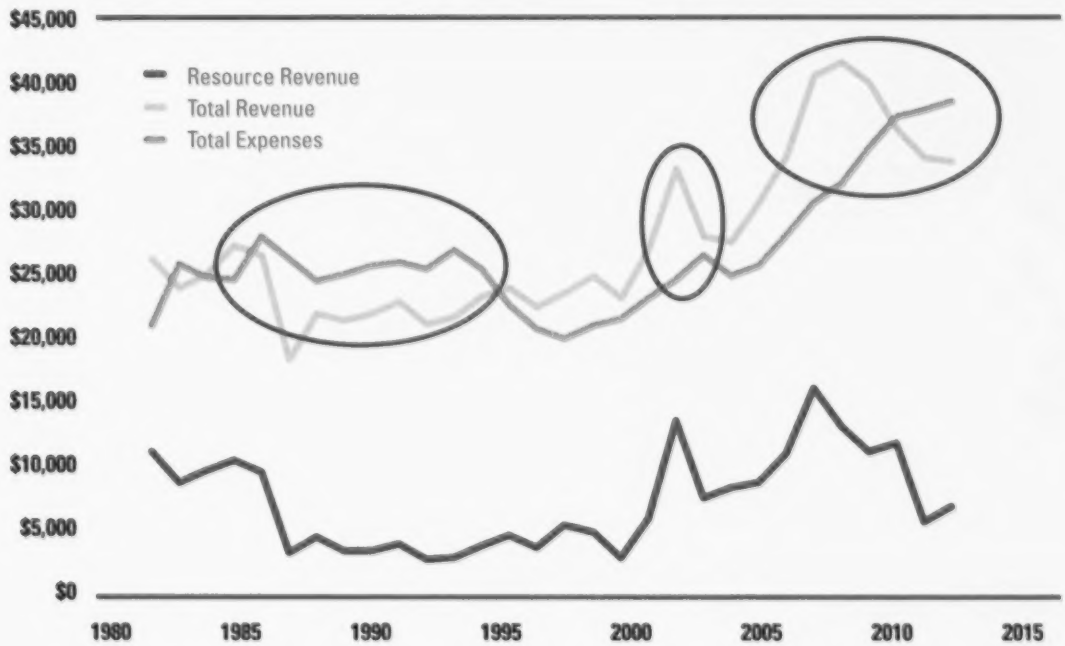
The Council recognizes that it will not be easy to move away from the current practice of using resource wealth to underwrite about 30% of the cost of public services. We believe we must start on this path now, while we have a healthy natural resource sector.

Begin the difficult conversations now about how to do this. Make the transition in a carefully planned, phased way, recognizing it may require five to ten years to get there. Determine which expenditures in the current budget are in fact strategic investments in the future that should be moved out of the operating budget and funded through the Shaping the Future Fund. Put all options for dealing with remaining gaps in the operating budget on the table, no matter how contentious, and examine them thoroughly – including reducing services to align with current income, raising taxes, or generating new revenues through levies or user fees.

The challenge of volatility

The amount of money our resource wealth generates for Albertans is highly variable from year to year, dependent as it is on the world price of oil and gas. The effects of volatility in the economy are magnified by the practice of treating energy sales as general revenue. When the energy sector is booming, provincial revenues increase substantially. The public expects to share in the general affluence, and we put pressure on our legislators to increase spending.

REDUCTIONS IN EXPENDITURES LAG REDUCTIONS IN REVENUE (MILLIONS – 2010$)



Data source: Government of Alberta budget documents.

1. An abrupt decrease in resource revenues between 1986 and 1987 was accompanied by only a slight reduction in expenditure. Expenditures remained greater than revenues until 1995.
2. A one-year spike in these revenues in 2001 is followed one year later in 2002 by a peak in expenditures.
3. Resource revenues began declining from a peak in 2006 more or less steadily until 2009-10. Expenditures continued to rise until the present. Since 2008-09, the level of expenditures has exceeded total revenue.

WHERE TO START

When the energy boom turns to bust, public revenues are hit doubly hard. Like any other jurisdiction in an economic downturn, Alberta sees a decline in income from taxes. Unlike other jurisdictions that are less dependent on resource revenues, we also see an abrupt and often drastic decline in royalties.

Many of the programs and services that looked so attractive in good times become much less desirable when revenue falls, but the funding tap cannot be turned off overnight. A look back over the past thirty years shows total provincial expenditures persisting at a high level for a year or more after significant decreases in funds from the sale of non-renewable energy assets – and hence overall public revenue – on three separate occasions.

The Alberta government manages volatility through a stabilization fund built up during good times to draw on during downturns. Because we are counting on revenues from energy asset sales – which are four times as volatile as ordinary income[43] – to fund operating expenses, the stabilization fund needs to be quite large. In March 2009, the fund stood at about $16.8 billion.[44] Budget 2011 forecasts show it nearly depleted by March 2013.

With this highly volatile resource revenue removed from the GRF, the stabilization fund could be substantially smaller and still fulfill its purpose. Albertans could count on more consistent and sustained delivery of public programs and services, rather than the start/stop/start-again cycle associated with boom-and-bust economies.

Restore the stabilization fund to a level appropriate to withstand future cyclic drops in revenue

Recapitalize the stabilization fund initially using funds from the sale of non-renewable energy assets. Maintain the practice of having this cushion in place, subsequently replenishing it from general tax revenue during periods when those revenues are high.

With energy sale proceeds removed from the GRF, there should be substantially less volatility in regular government revenues, so the stabilization fund requirements should be substantially smaller.

43 Landon & Smith, 2010.
44 GoA, 2010b, p. 67.

Investing to shape the future with intentionality

Public investment in the future is not a new idea for Alberta. Strategic, public investments in the oil and gas industry have been instrumental in securing the province's current prosperity. These have taken a variety of forms over time. In addition to direct investment through ownership positions in companies like Syncrude and Alberta Energy Company, the provincial government has used indirect investment to support development of this strategically important industry. By "indirect investment" we mean revenue foregone as a result of flow-through shares, accelerated write-down of capital equipment, removal of the capital equipment tax, royalty holidays and restructuring of royalty regimes.

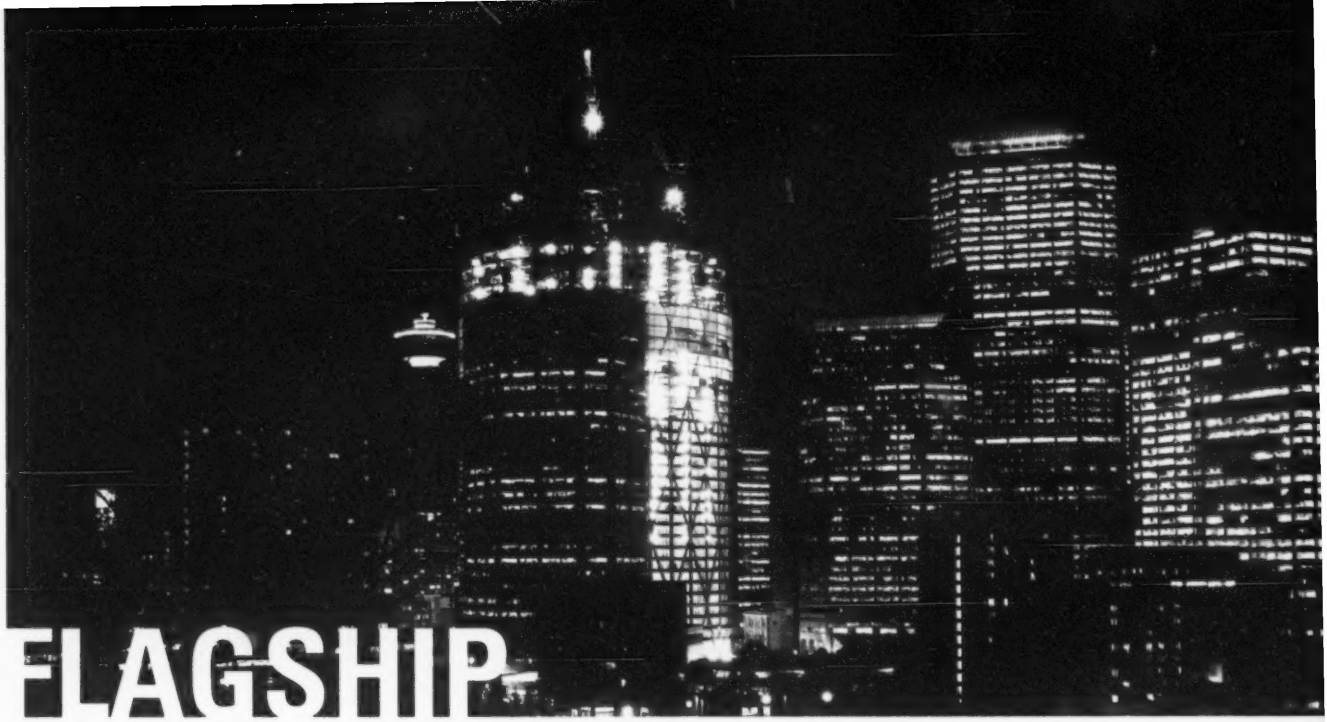
In 1976, the government created the Alberta Heritage Savings Trust Fund to invest non-renewable resource revenues "for the benefit of the people in Alberta in future years." During the late 1980s and 1990s, the view emerged that government "should not be in the business of business" and should not be so actively engaged in shaping the future. The Alberta Heritage Savings Trust Fund was shifted away from strategic business investments to become a savings tool investing for financial return. Investment into the fund was halted in 1987.

Other resource-based economies have established sovereign wealth funds as a means of managing the effects of resource development and of capturing the lasting benefit of their natural resources. By avoiding expenditures during boom times and making financial investment in other jurisdictions – or counter-cyclic investments in infrastructure, diversification and education – these governments have minimized the worst aspects of resource booms in other parts of their economies.

> Virtually every hub of cutting edge entrepreneurial activity in the world today has its origins in proactive government intervention.
>
> Josh Lerner, *Boulevard of Broken Dreams*[45]

Governments around the world are investing substantial resources in creating, attracting and retaining industries they identify as strategically important.[46] To compete successfully in the new global order, the Alberta government must take on a more active role that complements – not duplicates, not usurps – the private sector's role in driving economic growth. The challenges facing Alberta in the years ahead are such that it is time to revisit the philosophy of strategic government investment reflected in the original mandate of the Heritage Fund.

45 Lerner, 2009.
46 Wessner, 2009.



FLAGSHIP

A SHAPING THE FUTURE FUND FOR ALBERTA

THE RISK: That we fail to have the capacity to make essential long-term investments in ensuring our children and grandchildren enjoy even greater opportunity than we have. That we prove unable to hand future generations a legacy of "a better Alberta"

THE OPPORTUNITY: To invest the capital derived from our resource wealth in shaping the future with intentionality and securing prosperity for Albertans in the future

THE IDEA: That the government of Alberta establish a Shaping the Future Fund, based on proceeds from the sale of non-renewable energy assets (primarily royalties) to ensure that wealth produced by converting natural assets today is invested wisely in our economic future

HOW DO WE SEE IT WORKING?

The Shaping the Future Fund's mandate is to make strategic investment in firms, projects and infrastructure aligned with the priorities set out in this report: realizing the full potential of our energy resources while broadening the economic base – including creating the enabling conditions (in relation to people, water, land, electricity, transportation, communication) to support these efforts. The intent is not to relieve taxpayers of the responsibility for maintaining and replacing local "business-as-usual" infrastructure such as schools, roads and bridges – but rather to build momentum toward solving big strategic challenges or taking Alberta in new directions that are critical to our economic future.

Investments are made with clear expectation of measurable growth in economic activity in the province but not necessarily a direct financial return on investment (ROI) to the Shaping the Future Fund. Where financial return to the fund is part of the business case, it could be at a lower expectation of direct ROI than a financial investment fund would require. Within these general parameters, it will be important to flesh out a clear, rules-based allocation policy for the fund that sets out long-term objectives.

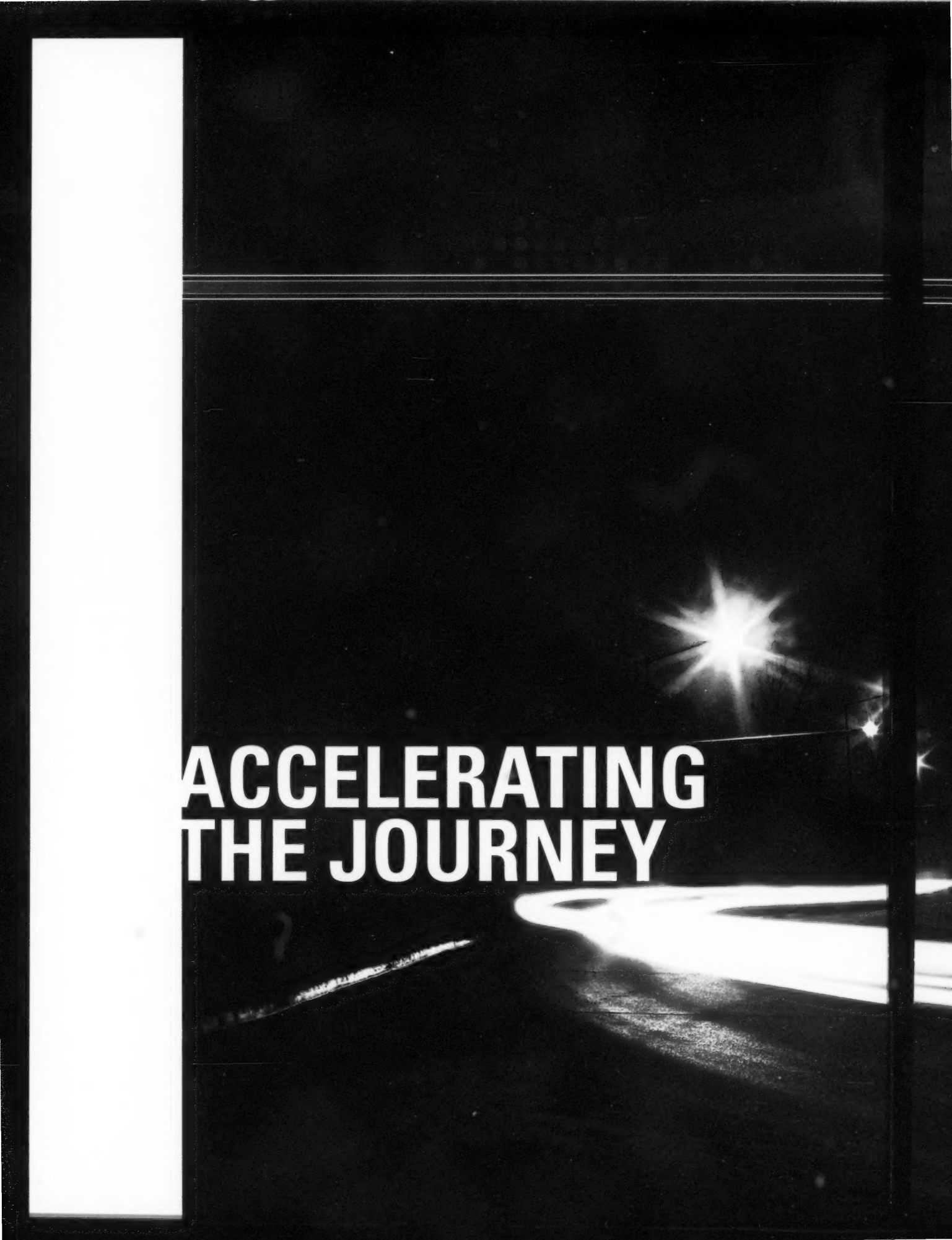
Examples of where the Shaping the Future Fund might invest:

- Innovative, trajectory-changing initiatives. We have outlined examples of such initiatives in our flagships:
  - Establishment of a Global Centre for Energy
  - Core funding for an Alberta Institute of Advanced Technology, as well as additional research program funding, based on proposals backed by business cases
  - Elements of the strategy to achieve educational parity for Aboriginal youth
  - Building of essential water infrastructure, as outlined by the Alberta Water Authority in a long-term plan
- One-time initiatives intended to substantially improve the effectiveness and efficiency of delivering government services (e.g., completion of a robust system of electronic health records)
- Public-private partnerships to build and operate infrastructure necessary to advance a strategic priority (e.g., underground demonstration facility for second generation in situ bitumen recovery technology, or large-scale strategic electricity transmission)
- Direct investment in firms, to attract them to or keep them in Alberta (e.g., acquiring and moving to Alberta a fast-growing, medium-sized company in a strategically critical market)
- Joint ventures with multinational firms to attract strategically important functions (e.g., co-investing with a multinational pharmaceutical firm to create an Alberta-based drug discovery and development centre)

As a starting point, we propose the following operating and governance principles:

- Within ten years, all revenue from the sale of non-renewable energy assets will be placed in the Shaping the Future Fund. Precisely how the transition will be phased will be highly dependent on what happens to the price of oil and the global economy during this period. If oil prices stay high, the transition may happen faster. It will need to be carefully managed, balancing current needs with long-term objectives. We do not intend to prescribe based on today's knowledge how the timeline and process will play out over a decade
- Expenditures in the current provincial budget will be reviewed to identify items that could meet the criteria for investment through the Shaping the Future Fund and be re-profiled – such as Alberta Innovates and the Carbon Capture and Storage Fund
- The fund will be governed under a rules-based framework established by the legislature, but will operate at arm's length from government
- Governance will include a cross-section of individuals with financial, commercial and technical expertise
- Any funds not immediately deployed for strategic investments will be managed by the Alberta Investment Management Company (AIMCo). These funds will be invested globally in financial assets with the aim of maximizing financial return. The Shaping the Future Fund will have access to all of its funds as well as any investment return when the funds are required for a strategic investment
- Investment decisions by the Shaping the Future Fund will reflect strategic goals identified by government for growing the economy
- The Shaping the Future Fund will favour long-term, value-added opportunities where Alberta has an existing position or sustainable competitive advantage
- The Shaping the Future Fund does not necessarily seek commercial rates of return. Government specifies the investment parameters – such as the factor by which expectation of financial return for Alberta-based investments should be discounted. Government and the Alberta public will benefit through increased tax revenue as the economy grows
- It targets areas where there is insufficient private capital – typically large infrastructure, or leading-edge high-tech businesses for which there is no established market
- Investments require a well-developed business case that is rigorously evaluated against the criteria of economic and strategic benefit to Alberta
- The performance of all investments is monitored and managed against the initial investment criteria

With the Shaping the Future Fund making strategic investments in shaping Alberta's future, we will be better able to give our children and grandchildren a legacy we can be proud of.


ACCELERATING
THE JOURNEY

ACCELERATING THE JOURNEY

What will Alberta be like in 2040?

We envision a prosperous province in which all citizens are enjoying an enviable quality of life in vibrant communities. They are reaping the benefits of natural resource wealth without sacrificing the health of the environment or the legacy of future generations. The world is coming to Alberta to learn the secret of how they are doing this, and Albertan expertise is in high demand. Energy from Alberta has earned respectable environmental credentials and is playing a major role in meeting growing global appetite.

Exciting jobs in fields that were almost unknown in 2010 are being created every day, as world-class researchers collaborate with industry to turn new knowledge into businesses. The food and fibre, medical and biotechnology, information and communication technology sectors are undergoing fundamental transformations. Albertans are seizing early advantage in emerging fields, finding profitable niches in global supply networks, and creating new sources of wealth for the province.

Intelligent, skilled people from abroad are attracted to the province by opportunities to study with the best, innovate and create, earn a good living. Albertans are found working all over the world, staying connected and making connections for others from their home province.

This is not utopia. New challenges have arisen that were never even contemplated in 2010. But Albertans continue to build their resilience and ability to adapt. They continue to learn and apply their ingenuity to find solutions to problems. They continue to act with intent and invest in shaping their future.

Charting the course

These are our navigational beacons – the indicators that Albertans have opened eyes and minds to opportunities around the globe, and are on a course to sustainable prosperity for future generations. Getting there will require unwavering focus on:

- Realizing the full potential of our energy resources – addressing issues of production cost and environmental impact, and
- Broadening the economic base – applying knowledge in new ways to get greater value from our natural and human resources

We must not let the prospect of short-term gains from the next energy boom distract us from long-term investment of brainpower and money in pursuing these ends. To achieve them, Albertans must:

- Prepare ourselves to prosper in the global economy, making choices that keep us healthy and continually learning, informed and engaged globally
- Invest in creating a solid platform for growth, tackling issues related to water, land, electricity, transportation and communication
- Think differently about how we manage our resource wealth – investing capital resource assets in growing the economy to generate wealth into the future; meeting today's expenses with today's revenue rather than spending the legacy of future generations

Leading the way

We have outlined five bold moves that can change the current trajectory and accelerate Alberta's journey:

- Create a **Global Centre for Energy** – a crucible for accelerating innovation to transform environmental and operational performance
- Establish an **Alberta Institute for Advanced Technology (AIAT)** with a sole focus on commercially oriented research to create new products, processes and companies
- Accelerate action on ensuring **Aboriginal young people** are able to benefit from opportunities this province offers, and contribute to the province as productive workers, engaged citizens and leaders
- Give a new **Alberta Water Authority** the mandate to innovate in water stewardship, and realize the full benefit of our precious water assets
- Institute a **Shaping the Future Fund** to ensure that money produced by converting natural assets today is invested with intentionality to secure prosperity for future Albertans

The government of Alberta has an important role to play in making these happen, but government cannot do it alone. These initiatives will require leadership from all sectors of Alberta society and collaboration at the provincial, national and global levels.

We have proposed other starting points to set the province on the right path. Some have obvious "owners." Throughout, we have called on government, business, research and academic institutions, social service and not-for-profit organizations to take specific actions.

But in many instances, we have put ideas out for any Albertan individual or organization to pick up and run with. There is always a danger that readers may nod in agreement with at least some points, then sit back and wait for others to take the lead. Experience has shown that often the most powerful change comes about when informal leaders become passionate about driving it, make a personal choice to get engaged, and motivate others to rally around a cause. We already see this happening on many fronts in Alberta. Our great hope is that the ideas we have put forward here will spark more of this kind of leadership and inspire all Albertans to take action – quickly and energetically.

As a Council, we will measure our success by the conversations and actions that gain momentum in the months to come. What would we like to see? All these ideas being debated, tested and evolved as new perspectives and realities are brought to the table. New ideas emerging from this dialogue. Detailed action plans fleshed out for priority initiatives, with clear accountability for implementation, measurable outcomes, timelines and milestones. A new sense of global geography among Albertans. The central themes reflected in Throne Speeches, budgets, corporate business plans, organizational strategies, education plans, financial plans – in all community, family and personal planning.

Some steps can be implemented immediately; others will take time. We call on the government to institute a formal look-back in eighteen months at what has happened with the ideas laid out here, and what must be done to ensure Alberta is successfully positioned to navigate the frontiers of the new global economy.

The time to begin is now

It will not be easy to create the future we envision, but Albertans have the resources to do it if we have the will and the drive. It will take leadership and patience, as well as a commitment to sustaining effort over decades. It will take collaboration among Albertans in all walks of life. It will not happen by accident. The same global forces that present great opportunity for Albertans could just as easily be threats to future prosperity. We cannot afford to be complacent.

Amazing things can happen when individuals decide to take personal initiative and mobilize others. Let's get started.

> Thirty years from now, when I'll be 50, I know that the world will be different in some drastic ways. The baby boomers will be gone and my generation will pace corridors of power....I want to live in a province where everyone believes that we have more potential than we do oil. To make this happen, Albertans themselves need to embrace education as the key to unlocking this potential. If we can make that happen, it would be the best 50th birthday present I could imagine.
>
> Submission to Council from Steven Kwasny, Chair, Alberta Students' Executive Council

APPENDIX A

Members of the Premier's Council for Economic Strategy

Honourable David L. Emerson, Chair: Raised in Grande Prairie, studied economics at the University of Alberta and Queen's University, Minister of Industry for Canada, Minister of International Trade, Minister of Foreign Affairs while serving as Member of Parliament (2004-2008). Serves on the Board of Directors of Stantec Inc., Finning International, Postmedia Networks Inc., Timberwest Forest Corp. and Chorus Aviation Inc.

Elyse Allan: President and Chief Executive Officer of GE Canada and Vice President of GE. Director on several boards, including the Canadian Council of Chief Executives, C.D. Howe Institute and the Royal Ontario Museum. Chair of the Canadian Chamber of Commerce.

Professor Sir John Bell: Born and raised in Edmonton, Regius Professor of Medicine, University of Oxford and Fellow of the Royal Society and Knight Bachelor for services to Medical Science. President of the Academy of Medical Sciences. Chair of the Bill and Melinda Gates Foundation Scientific Program Advisory Committee.

Robert (Bob) Brawn: More than 51 years experience in oil and gas and resources industries in chemical engineering, oilfield servicing, managing research and development of new products, and business operations. Chair of the Alberta Economic Development Authority, Co-chair of the Alberta Competitiveness Council, Chairman of the Board and Director of Grande Cache Coal Corporation, and president and director of several other public and private companies.

David Dodge: Taught economics at several universities. Held senior positions in the federal government. Federal Deputy Minister of Finance and Deputy Minister of Health until appointed as Governor of the Bank of Canada. Currently Senior Advisor at Bennett Jones LLP, Director of Scotiabank and Canadian Utilities Ltd., and Chancellor of Queen's University.

Juan Enriquez: Managing Director in Excel Venture Management, a venture capital firm that invests in life science companies. Past Founding Director of Harvard Business School's Life Sciences Project and founder Biotechonomy LLC, a life sciences research and investment firm. Author of *As the Future Catches You*.

James K. Gray: Engaged for more than 50 years in the oil and natural gas exploration business in Western Canada. Co-founder and former CEO of Canadian Hunter Exploration Ltd., one of Canada's larger natural gas producers. Past Chairman of the Canada West Foundation, Chairman of the Board of Governors of the Calgary Academy and an Honourary Life Director of the Calgary YMCA.

Clive Mather: Thirty-eight-year career with Shell worldwide which spanned all its major businesses – latterly President and CEO of Shell Canada Ltd. 2004-2007. Currently Chairman of Iogen Corporation, a leading Canadian biotech company; Chairman of Shell Pensions Trust Ltd. in UK; Chairman of Tearfund, the international Christian relief agency combating global poverty; and various other public and not-for-profit roles.

Honourable A. Anne McLellan: Distinguished Scholar in Residence, University of Alberta, Alberta Institute for American Studies. Member of Parliament 1993-2006 serving as Deputy Prime Minister of Canada and Minister of Public Safety and Emergency Preparedness, Minister of Health, Minister of Justice and Attorney General, and Minister of Natural Resources. Serves on the Board of Directors of Nexen, Agrium, Cameco and the Edmonton Regional Airport Authority.

Courtney Pratt: Chairman of the Toronto Regional Research Alliance. Chairman of Knightsbridge Human Capital and member of the Ontario Advisory Council of Telus. Director of Canadian Policy Research Networks, Canadian Council on Learning and Toronto City Summit Alliance. Former Chairman and President, Stelco Inc. Former Chair of the Calgary United Way.

Lorne Taylor: Consultant and businessman based in Medicine Hat, Alberta and Chair, Alberta Water Research Institute. Former Alberta Minister of Science, Research and Information Technology, Minister of Innovation and Science, and Minister of the Environment.

Professor Jennifer M. Welsh: Born and raised in Saskatchewan, Professor in International Relations at the University of Oxford, and Fellow of Somerville College. Co-director of the Oxford Institute for Ethics, Law and Armed Conflict. Former consultant with McKinsey and Company. Board of Trustees for the Toronto-based Walter and Duncan Gordon Foundation.

APPENDIX B

References

The Council consulted a wide variety of materials in the preparation of this report. Only works cited in the report are included here. For a more comprehensive list of resources consulted, go to http://premier.alberta.ca/PlansInitiatives/economic/index.cfm or call 780-427-5524.

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